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Celestial Meteorology Weather Phenomena in Our Solar System

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Professor, Eastern Florida College

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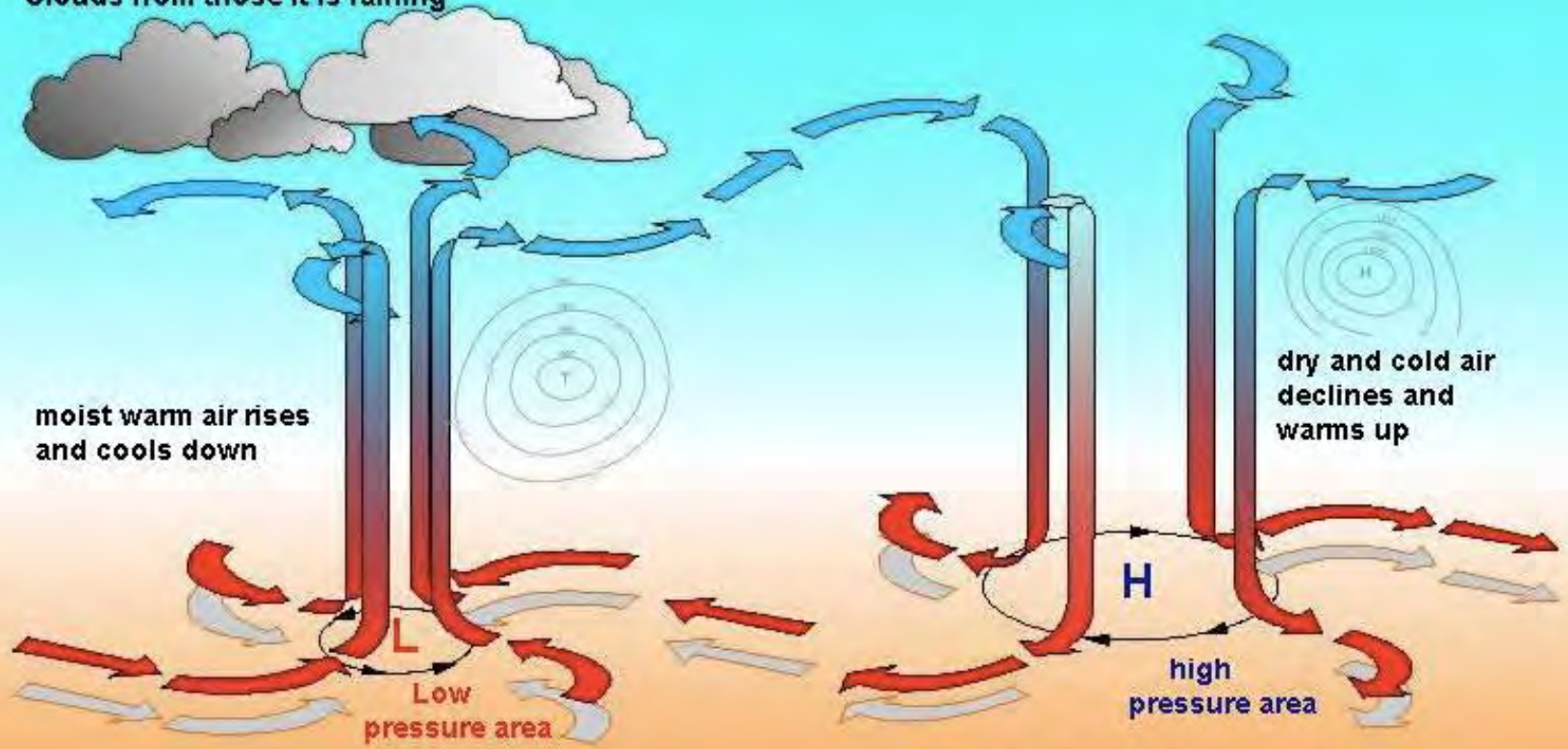
Celestial Meteorology Weather Phenomena in Our Solar System

Dr. Anthony El-Khoury

Weather on Earth



Clouds from those it is raining



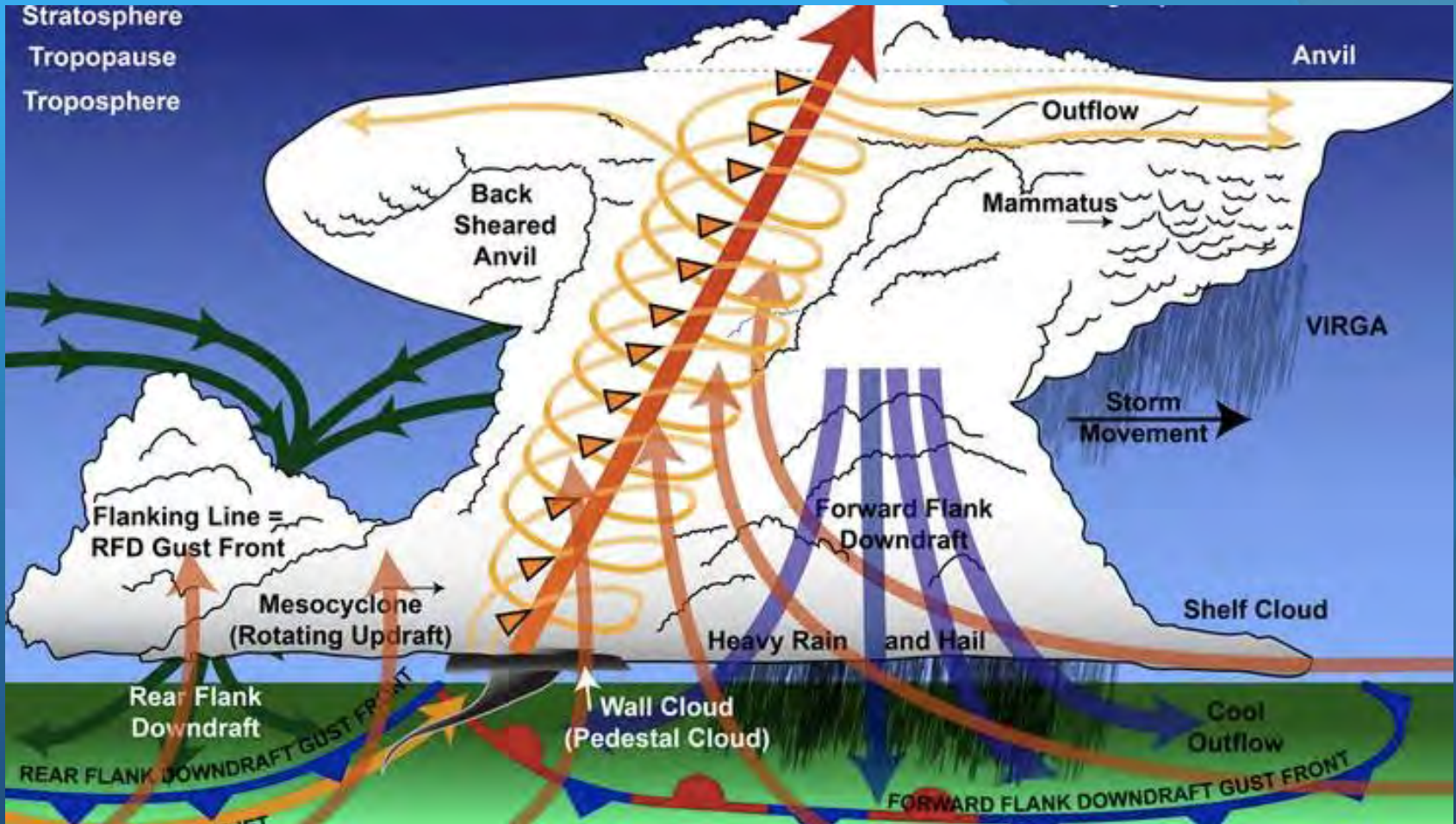
moist warm air rises and cools down

dry and cold air declines and warms up

Low pressure area

H high pressure area

wind blow in the clockwise direction from center.

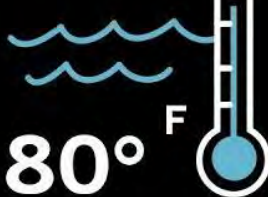


Hurricane Must Haves

Moisture

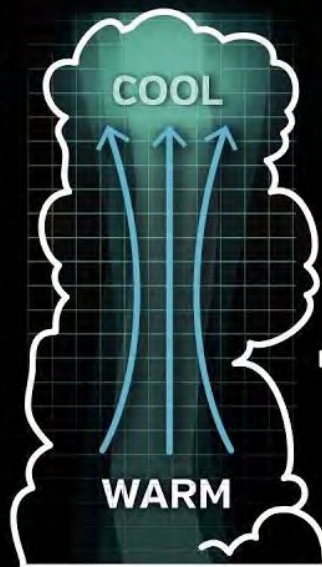


Fuel



80° F

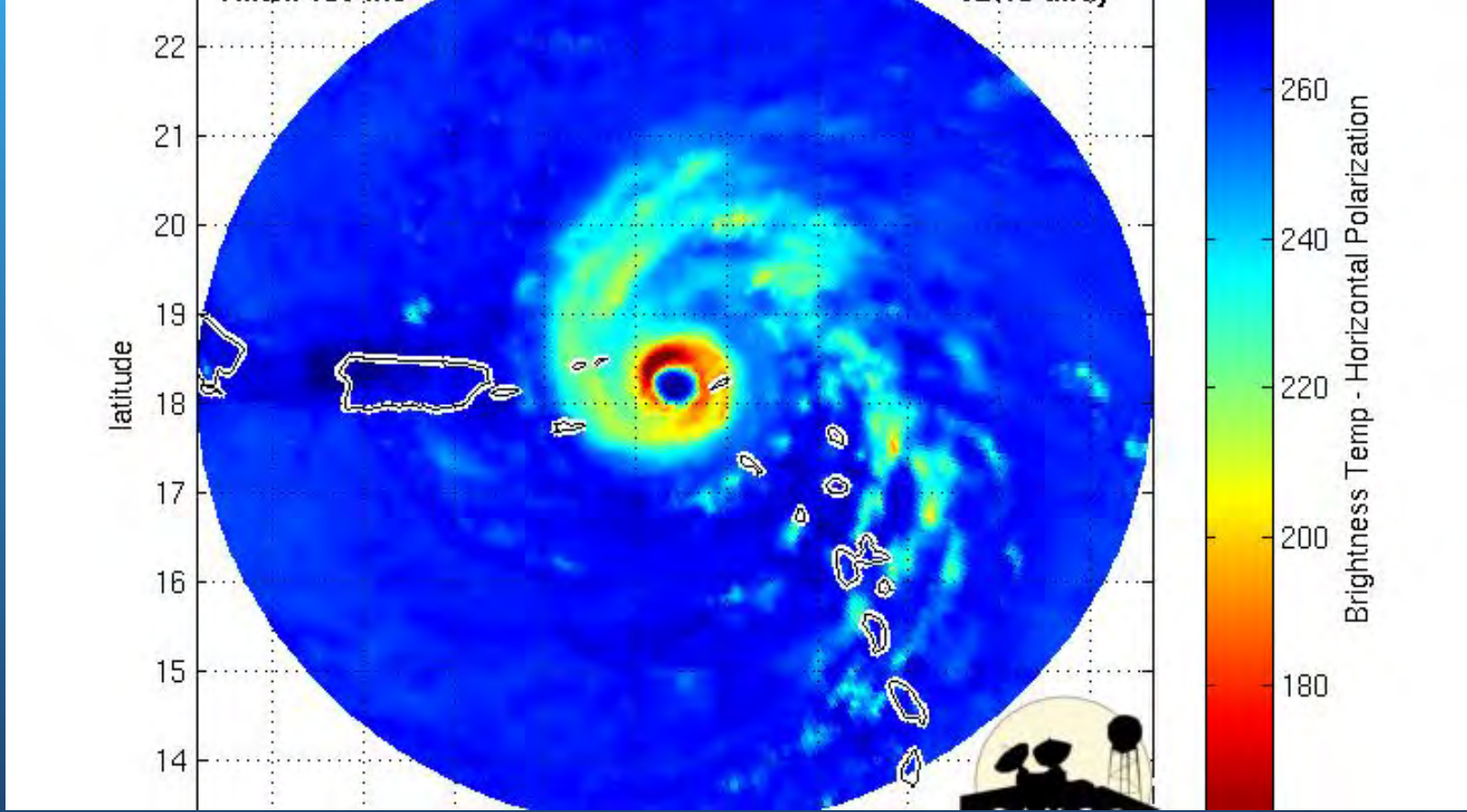
Instability



Calm

Weak
vertical
wind shear





Storm moves counterclockwise with prevailing winds, producing spiraling bands of wind and rain.

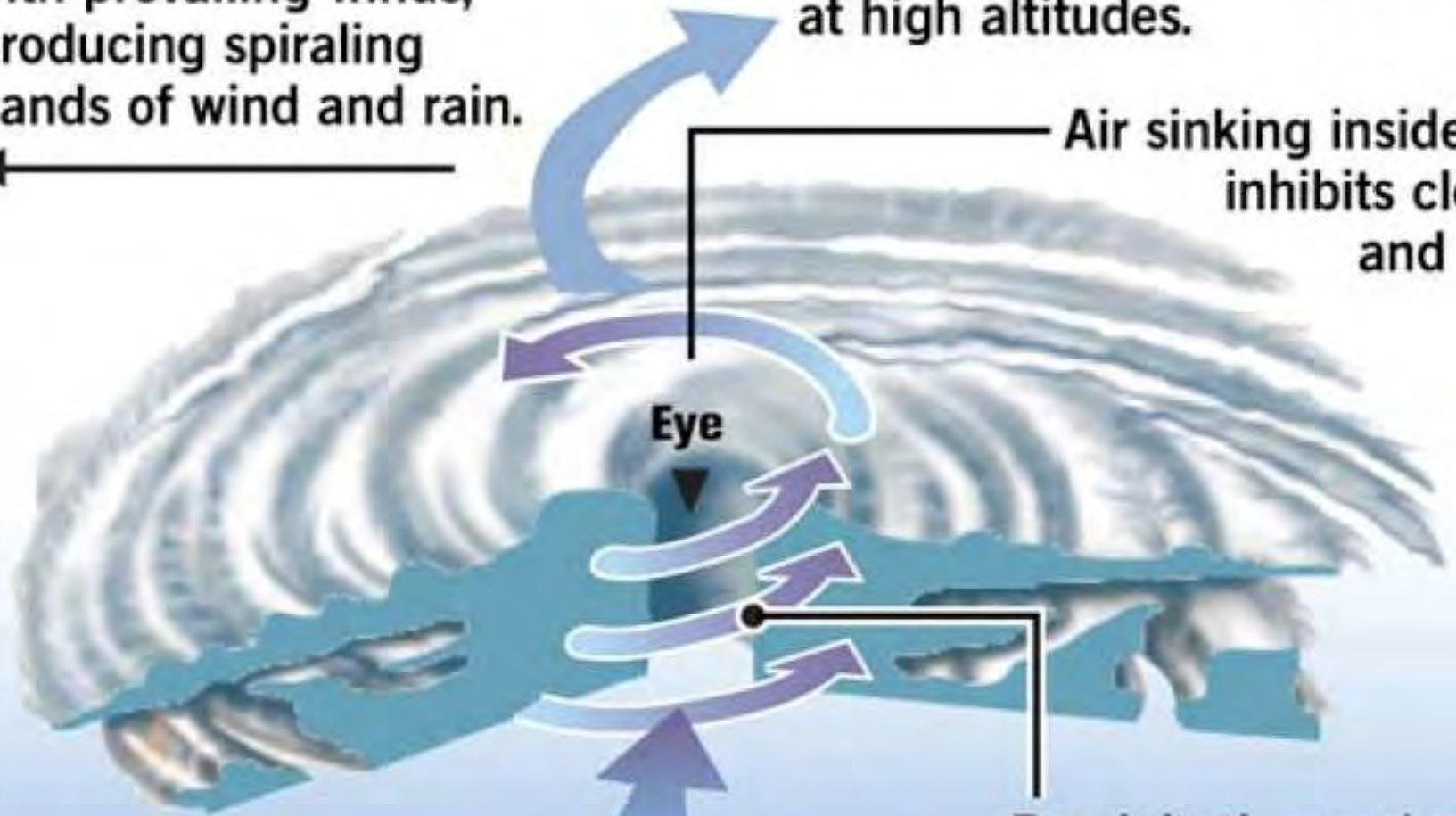
Winds weaken with height and air spirals outward clockwise at high altitudes.

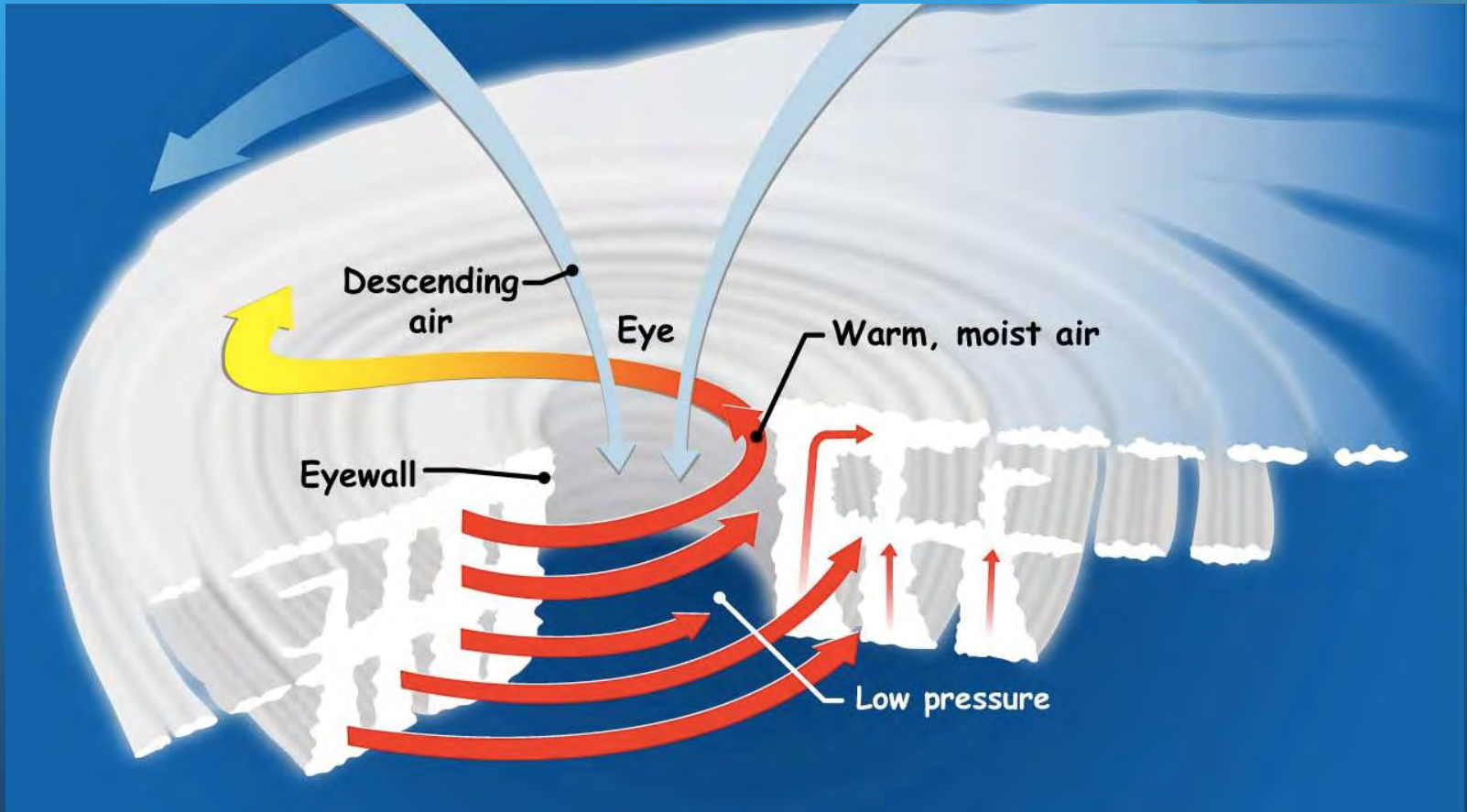
Air sinking inside eye inhibits clouds and rain.

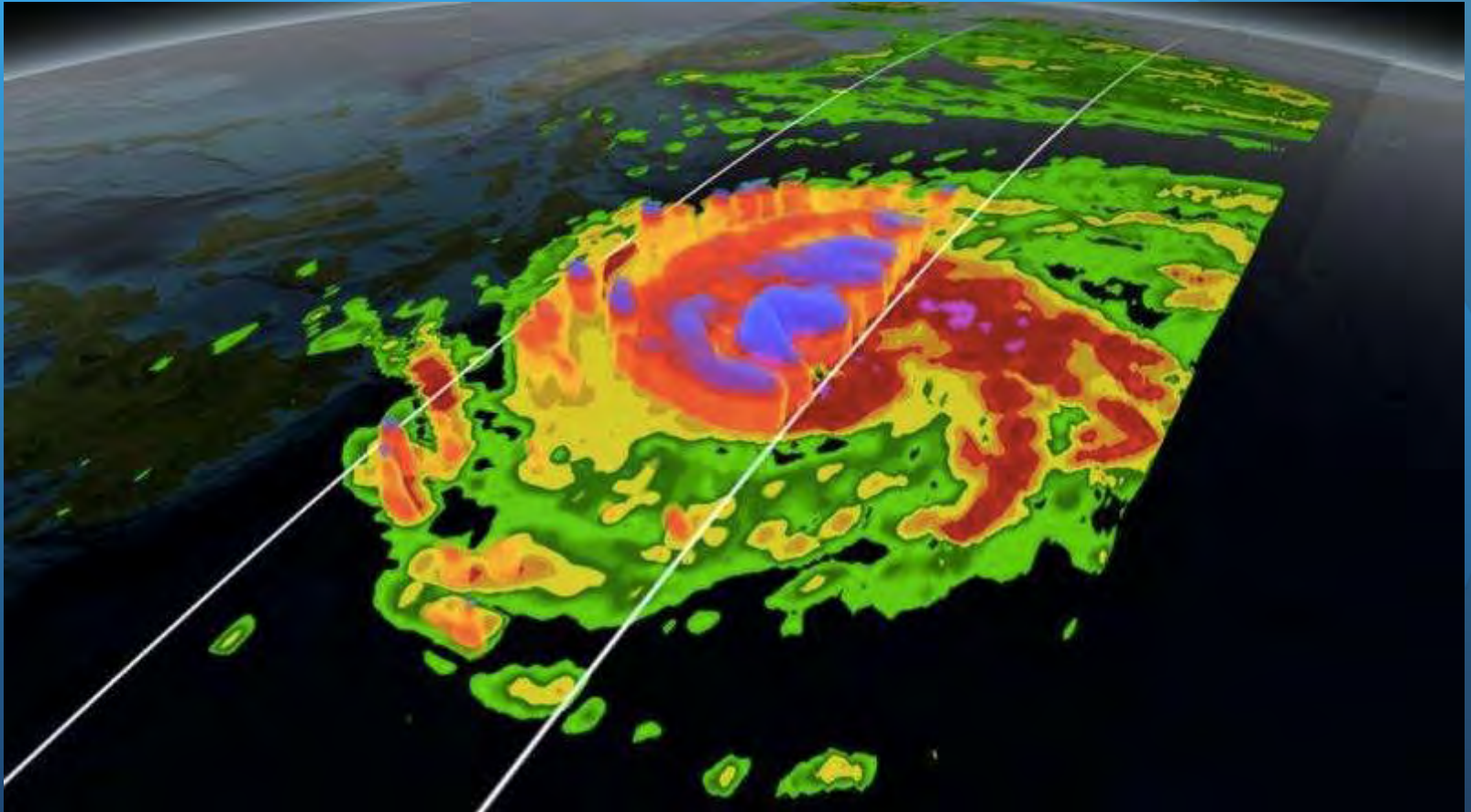
Eye

Precipitation and winds greatest at eye wall surface.

Warm, humid air feeds hurricane and spirals in toward eye, gaining speed.









Super typhoon Usagi

3 PM JST Fri Sep 20 2013

Position 19.8 N 124.5 E

Maximum Winds 155 mph

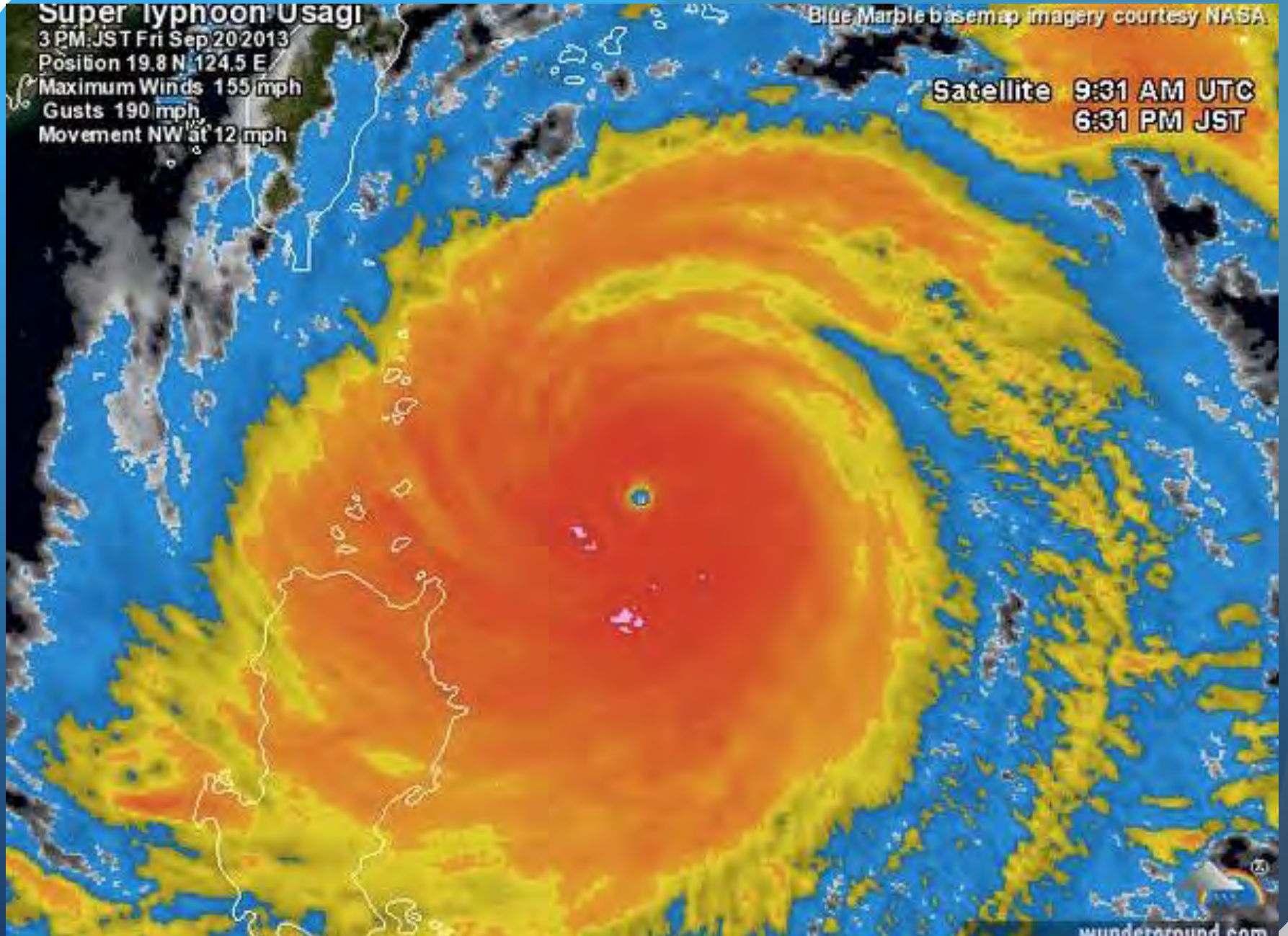
Gusts 190 mph

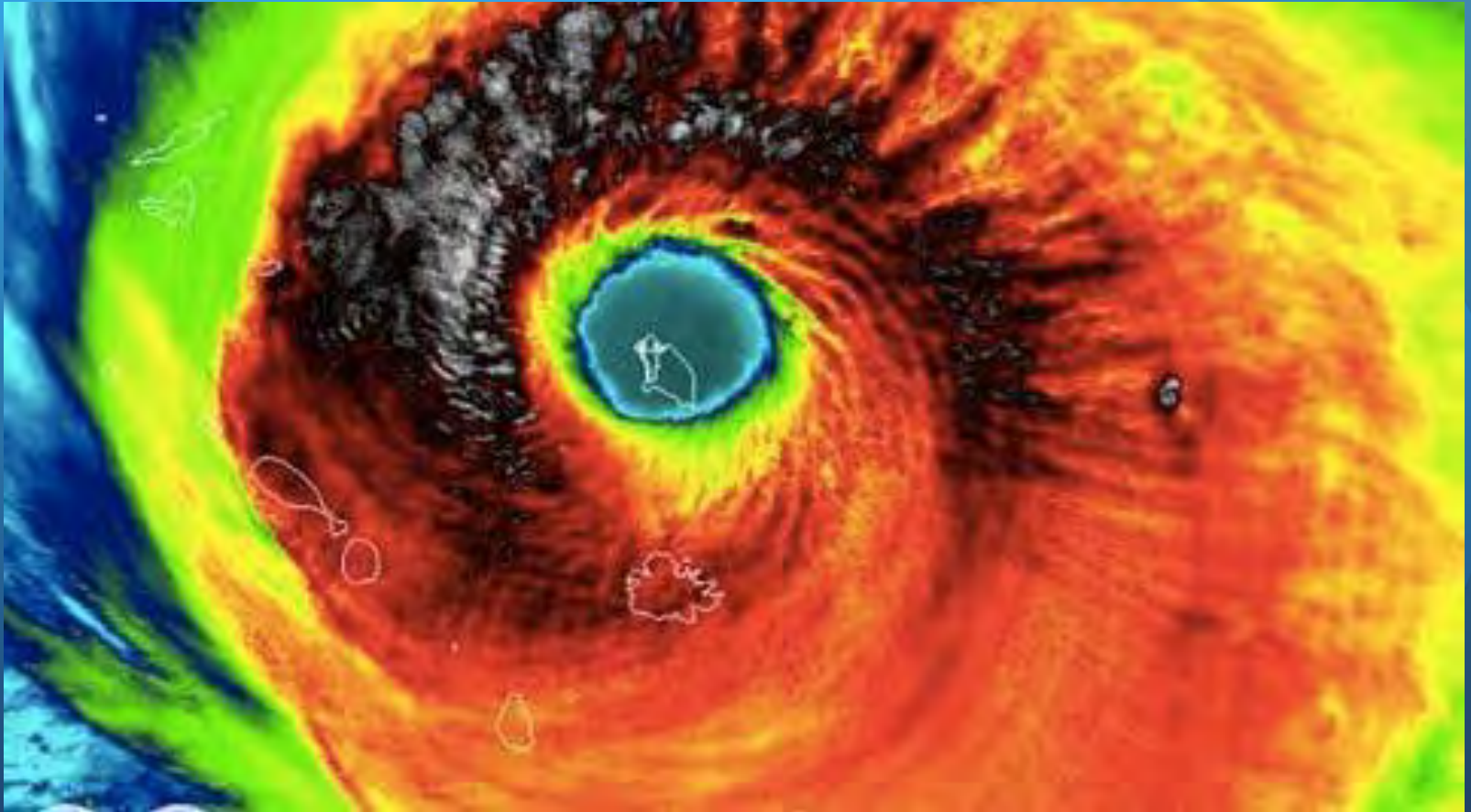
Movement NW at 12 mph

Blue Marble basemap imagery courtesy NASA

Satellite 9:31 AM UTC

6:31 PM JST





Super Typhoon Tip

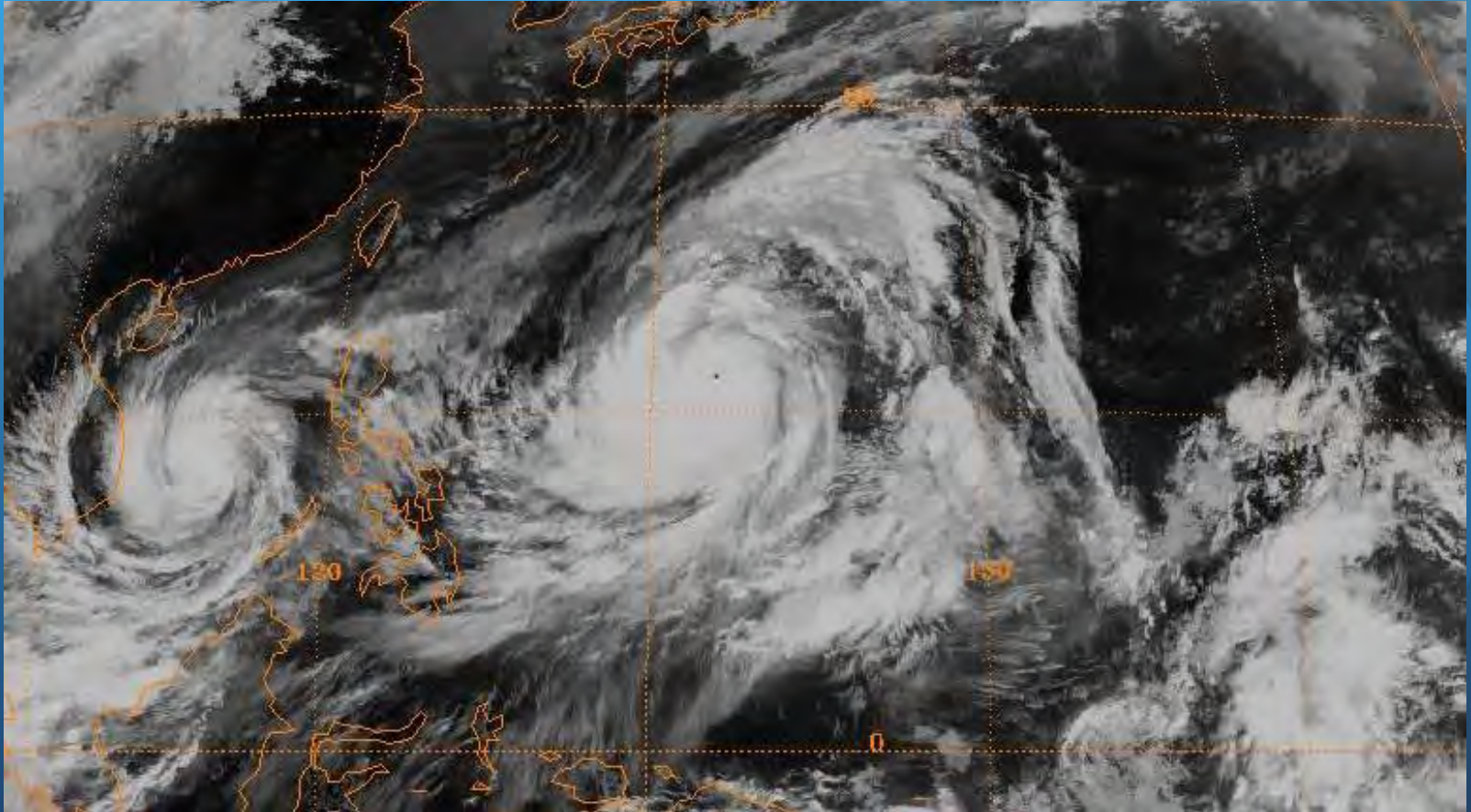
- Lowest Barometric Pressure - 870 mbar
- Highest Winds - 10 minute sustained 160 MPH
- Highest Winds - 1 minute sustained 190 MPH
- Formed - October 4, 1979
- Dissipated - October 24, 1979
- Duration - 20 Days

Super Typhoon Tip

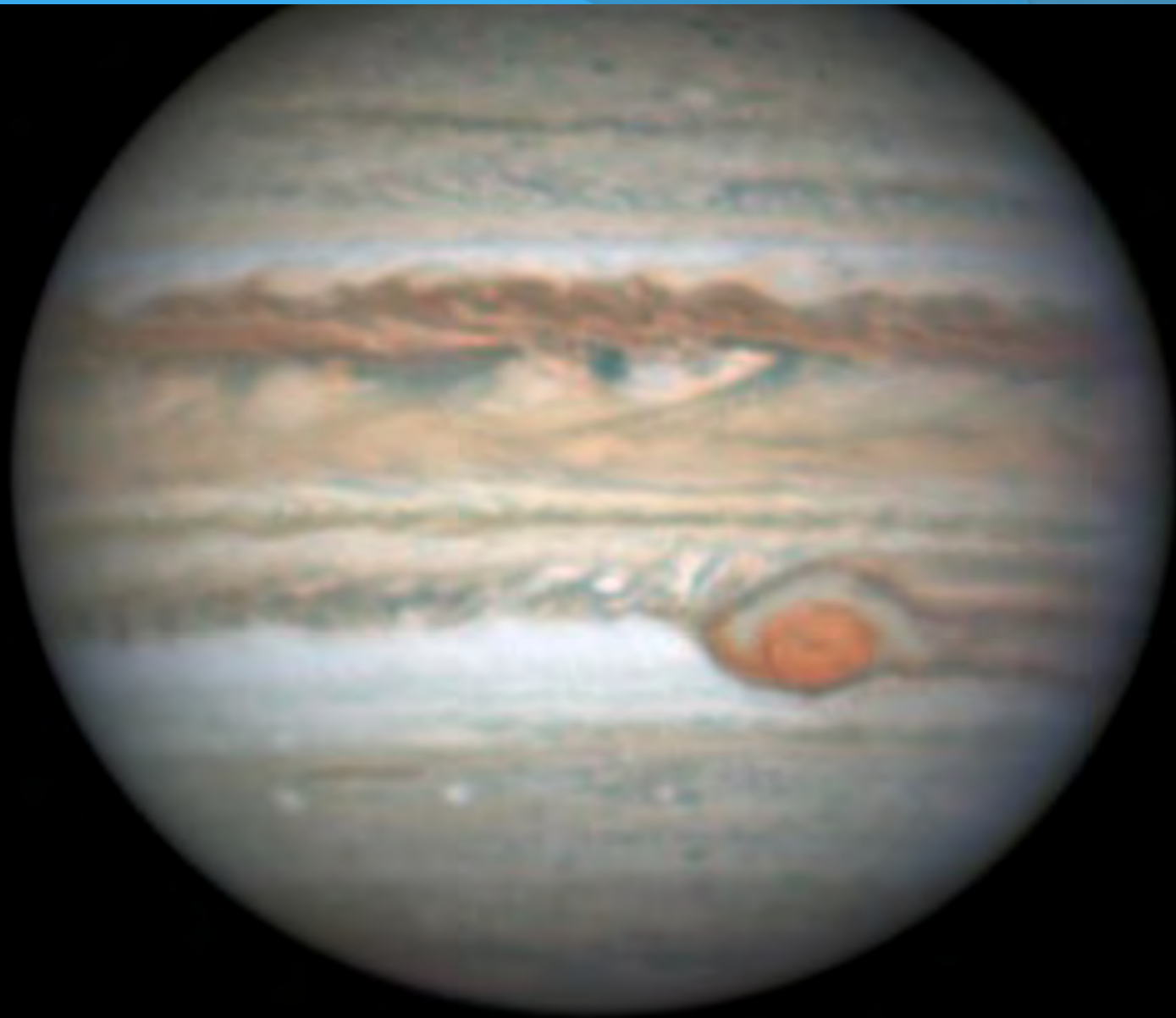


Tropical Cyclone Tracy



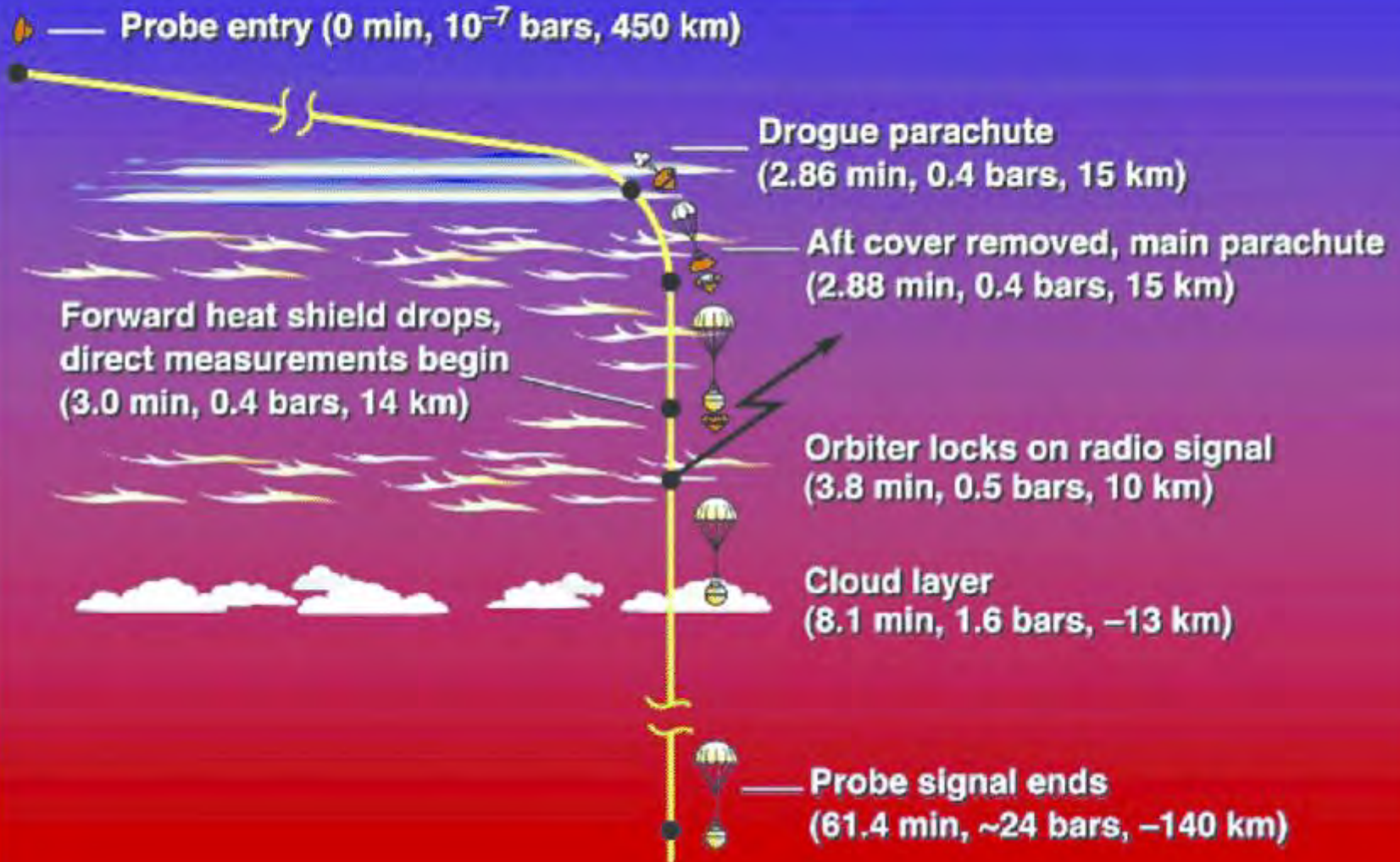




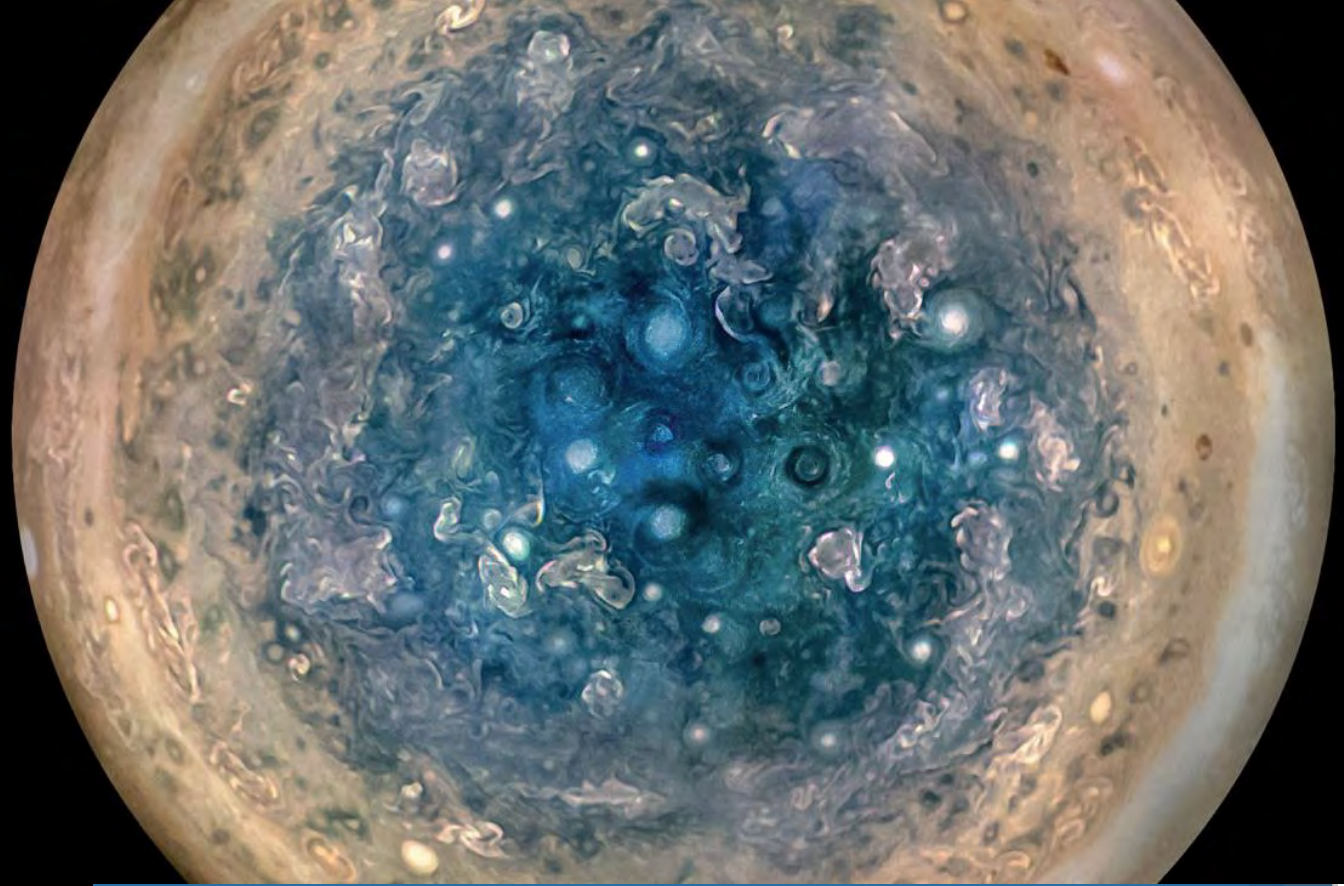




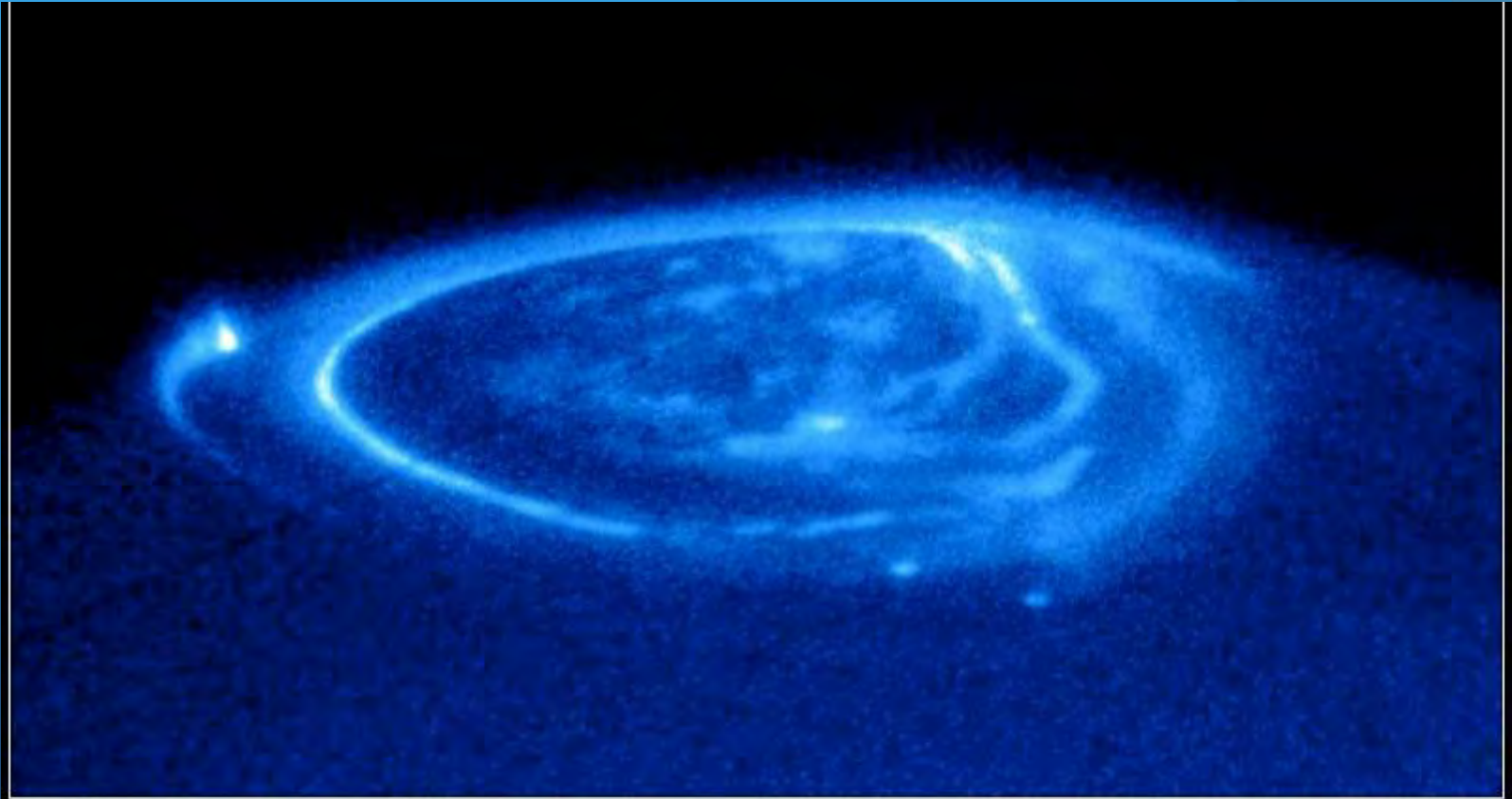
Probe Mission





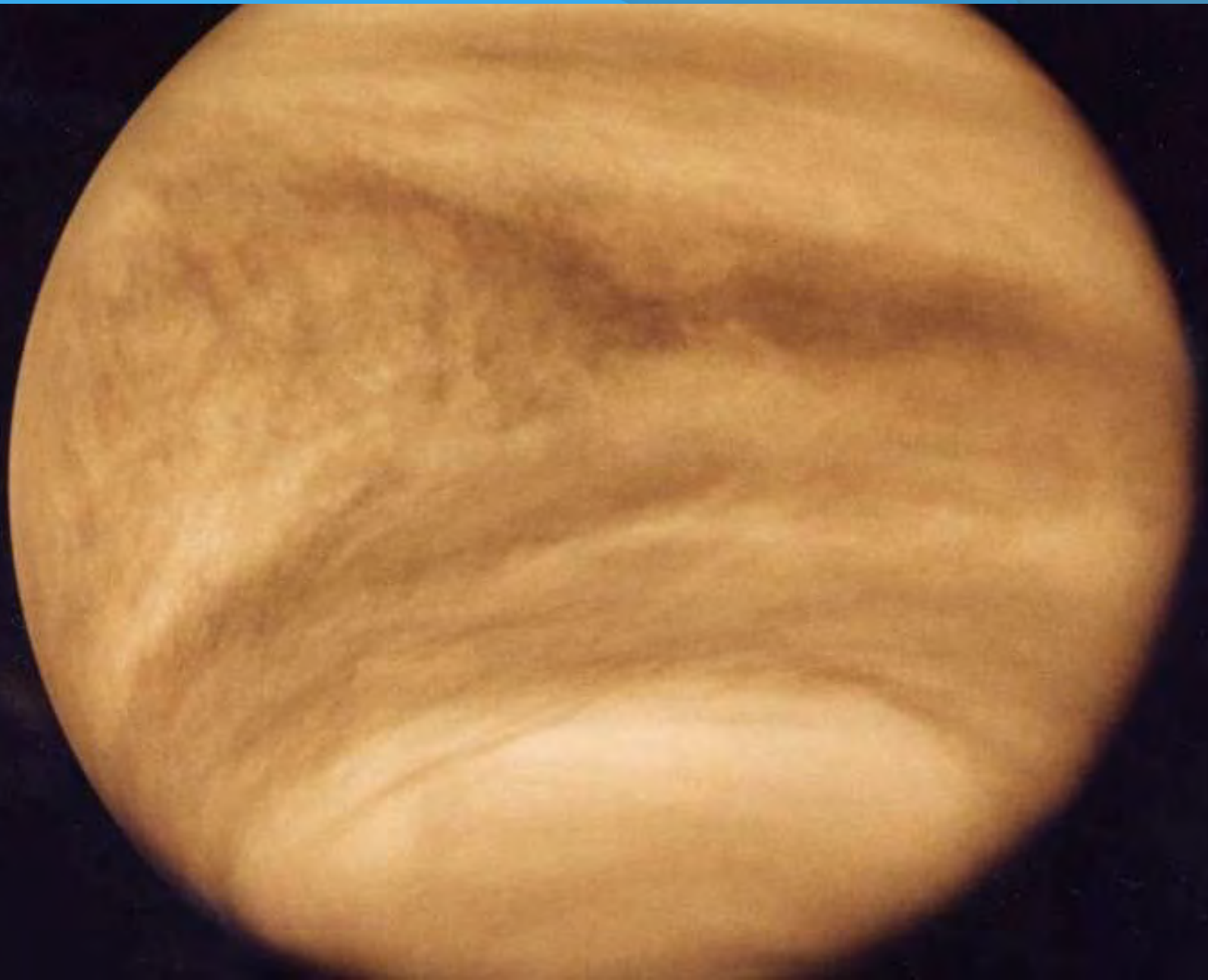


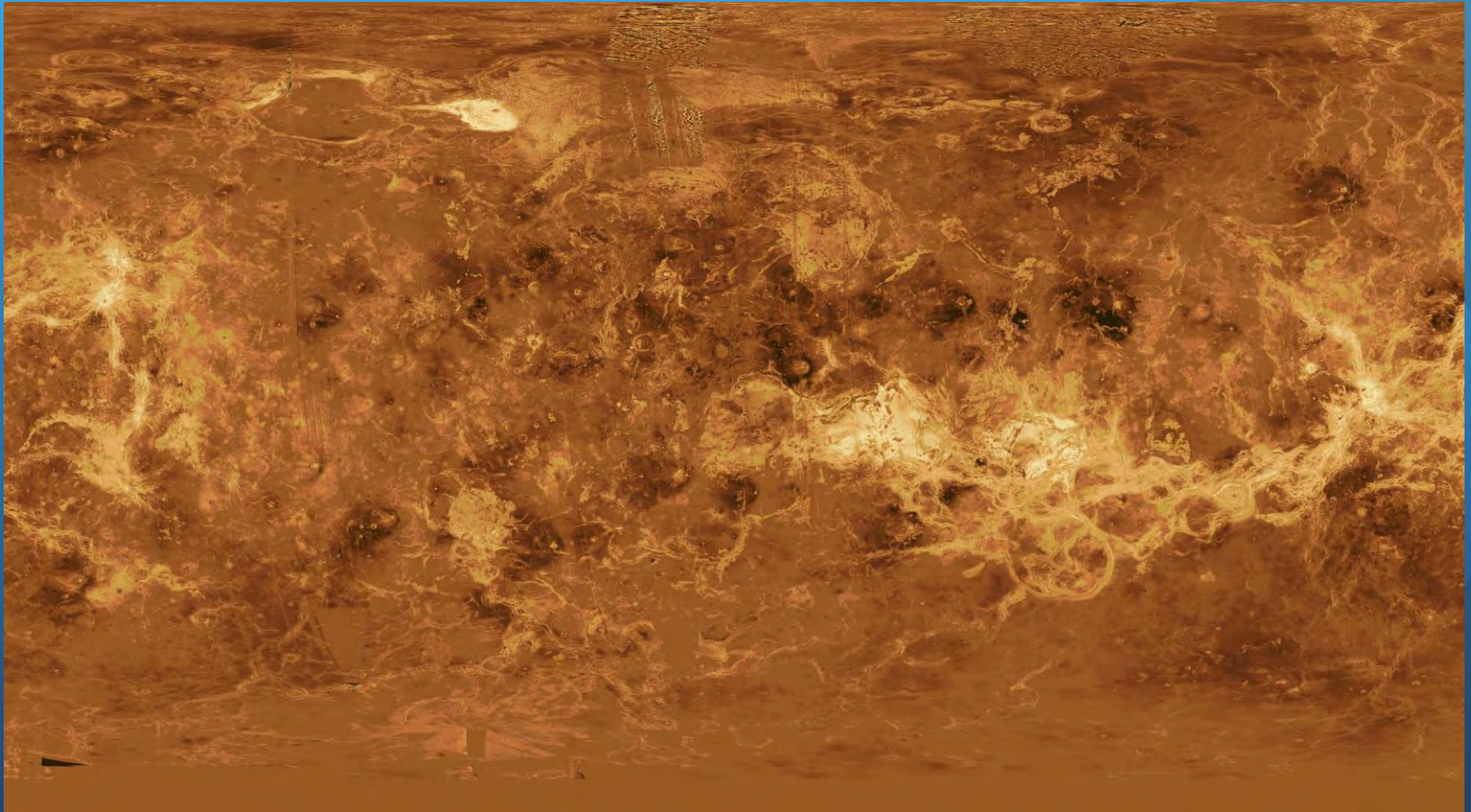


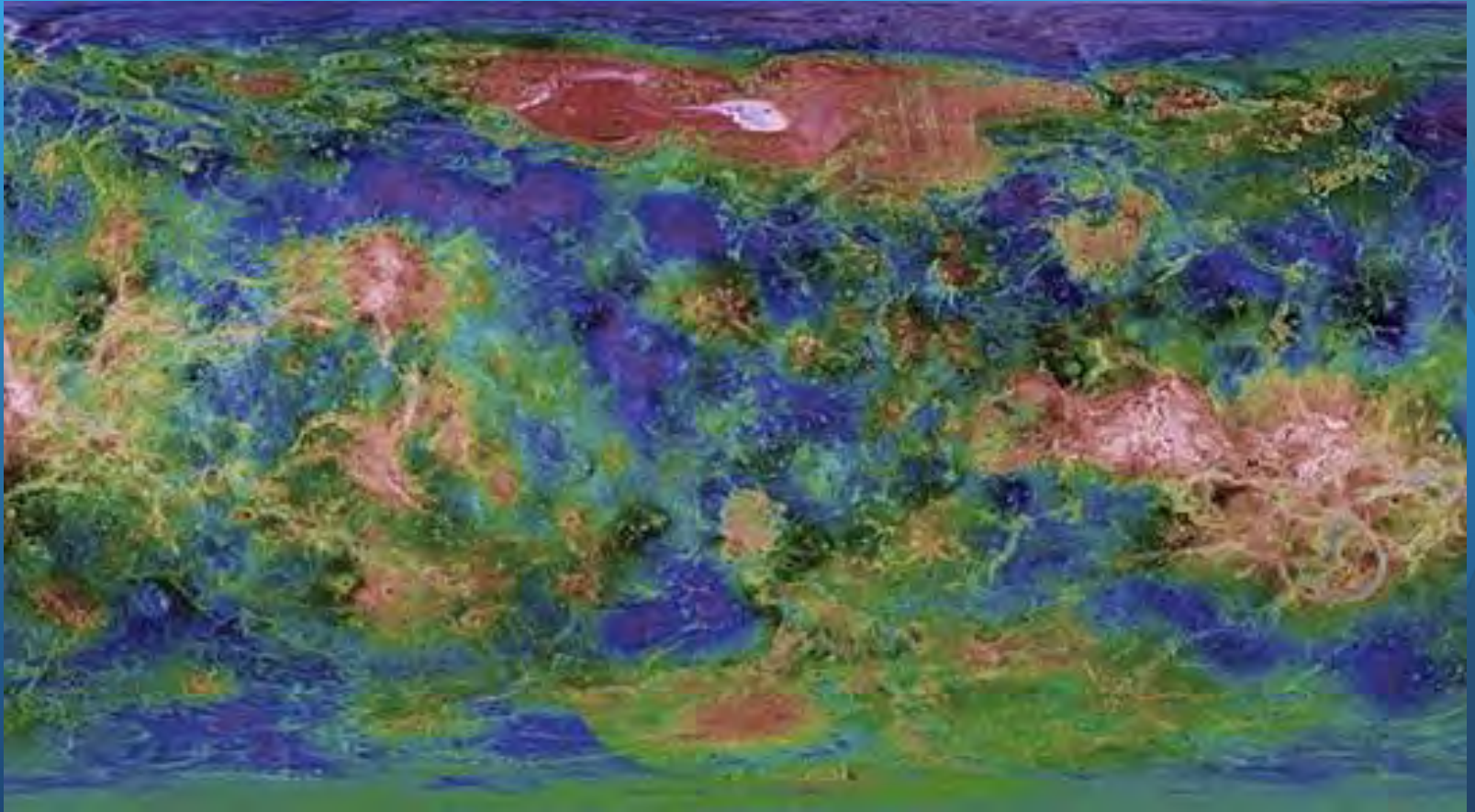


Jupiter Aurora

HST • STIS









North Sea

Ishtar

Rhodan Ocean

Irkalla

Hippolyta

Tamar

Beltiya

Rusalka Sea

Ersa

Morana

West Aphrodite

Cytherian Ocean

Symya

Kobla

Izanami

Kostroma

Eryxian Ocean

Morana

Morana

Zorya

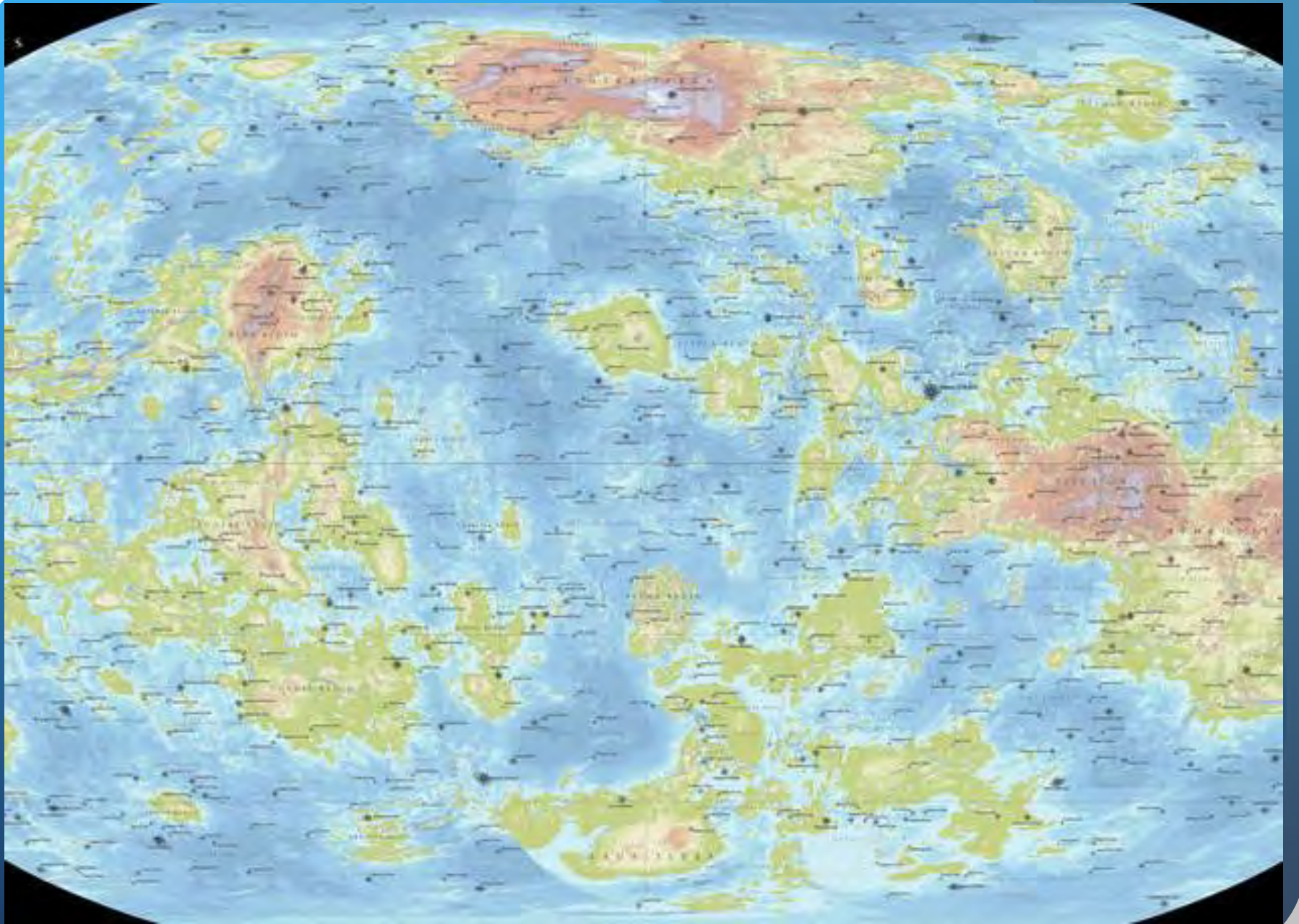
West Elysia

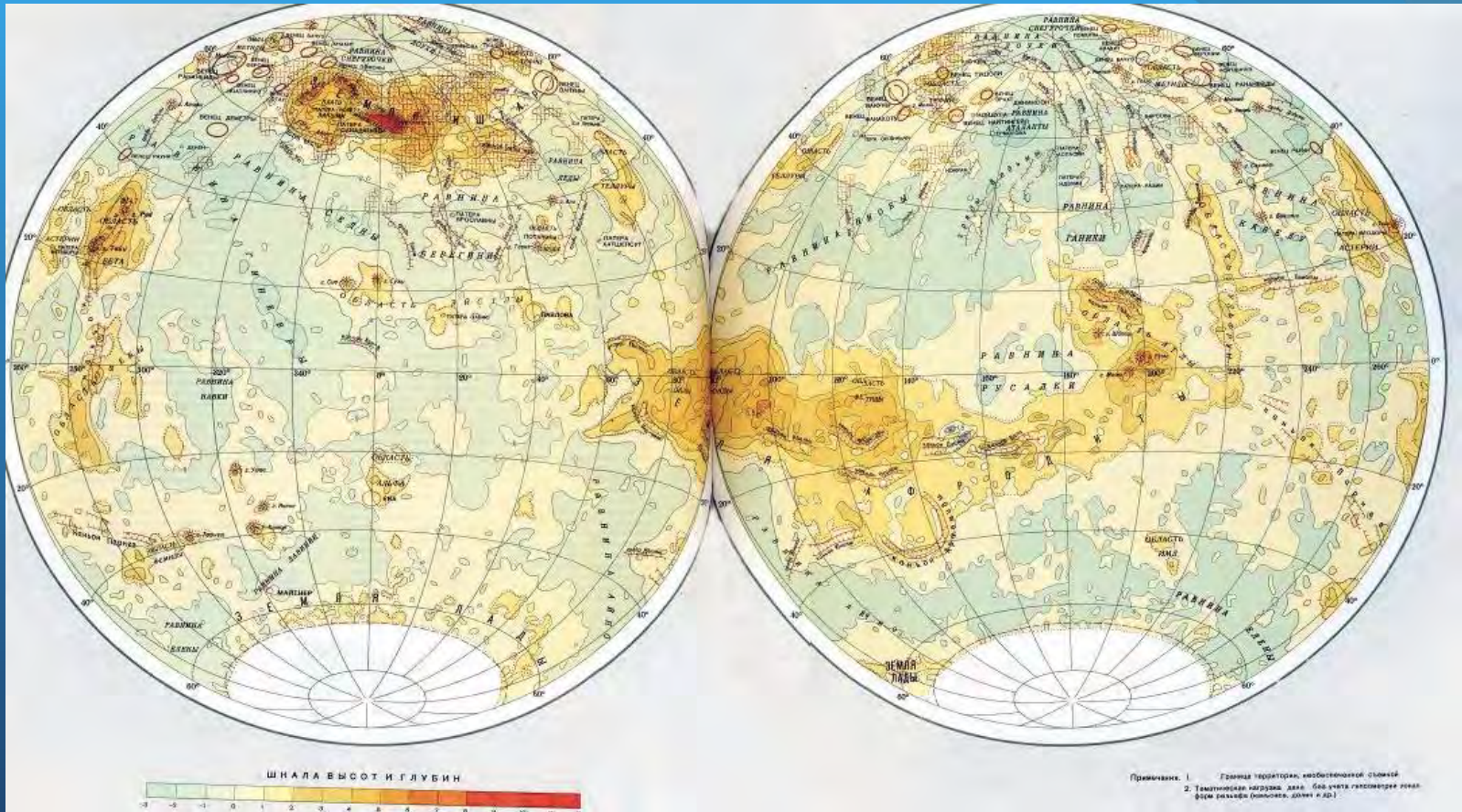
East Elysia

Mokoshu

Lada

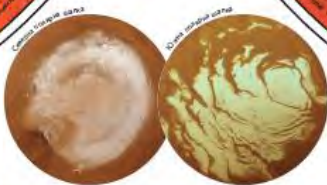
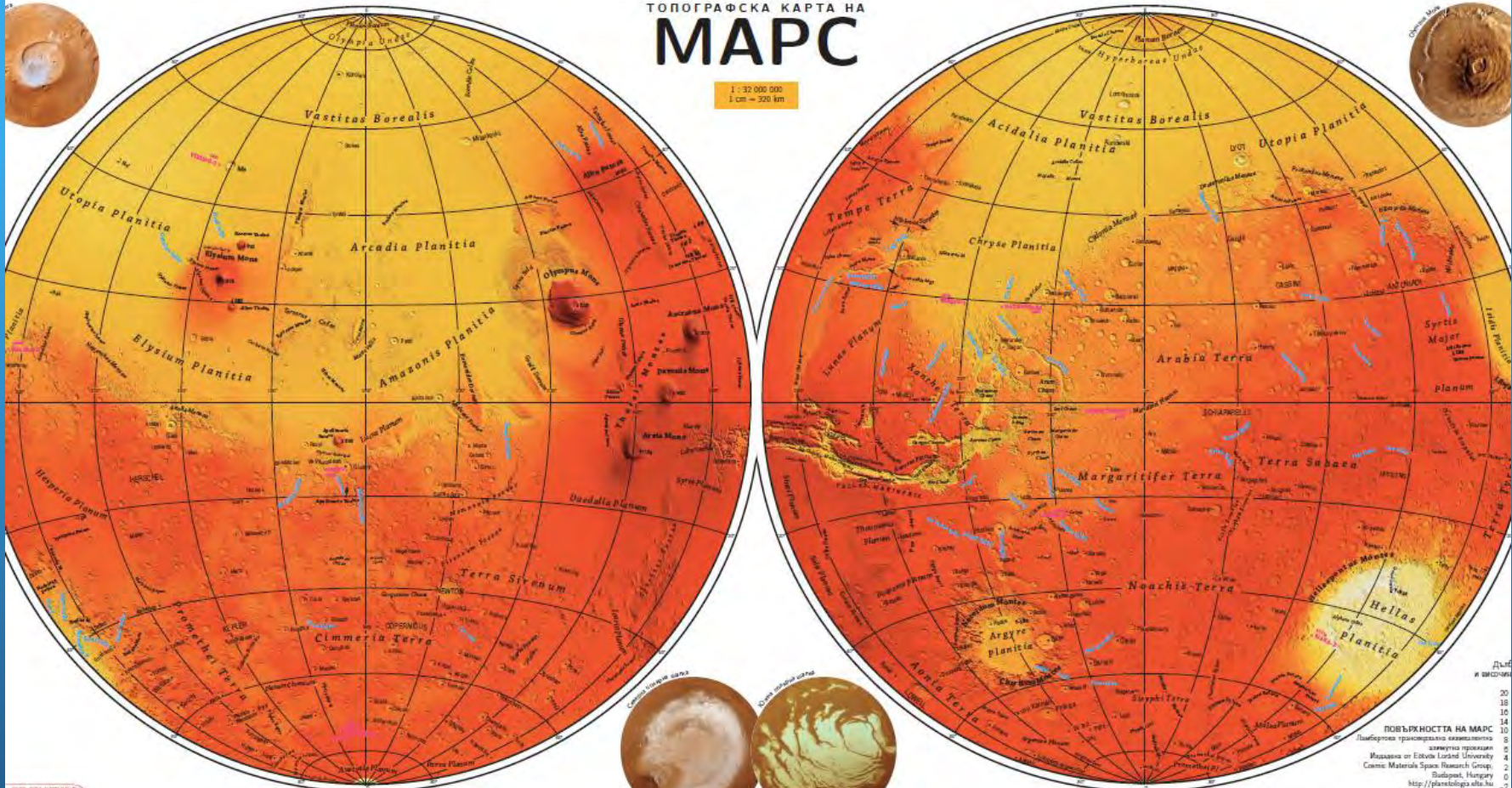
South Sea





ТОПОГРАФСКА КАРТА НА МАРС

1 : 32 000 000
1 cm = 320 km



И ЗА МАРС

не до Слънцето: 206-249 милиона km
Землет: 54-401 млн km
полюс: 3 396,2 km
в осъ: 22°30' (11°)
и период: 686,98 дни (1.88 земни години)
критане (1 осъ): 24ч.37м. 39с. 3,6 нс
на екватор: 21 320 km
мас: 3,329 масови единици
среден: кратерит Argy-0
плотност, радиус: 3 396 km
Землет със: 3,93 г/cm³
3.10-22.10 ммект
контантат: 598,2 W/m²
Фобос, Деймос:

НОМЕНКЛАТУРА

Санта, спанителе (Utopia, Arcadia, Amazonis, Elysium, Meridiani, Cydonia, Isidis, Tharsis, Helix, Acidalia, Chryse, Noachis, Argyre, Margaritifer, Terra Sabaea, Terra Sivatana, Cimmeria, Daedalia) и вулкани (Olympus Mons, Tharsis Montes) на Mars. Понякога се използват гръцки имена за планините и низините. Например, Vastitas Borealis (Северна безкрайност) и Vastitas Australis (Южна безкрайност). Други области са Arabia Terra (Арабия Земя), Terra Sivatana (Сиватана Земя) и Helix Planitia (Хеликс Планина).

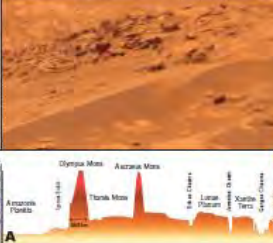
ИСТОРИЯ НА МАРС

Археологични проучвания на повърхността на Mars (по Тейкит и Миланов) са показали, че Mars е имал океани преди 4 милиарда години. Това е доказано от находките на речни каньони, например Valles Marineris. Тези находки са доказали, че Mars е имал океани преди 4 милиарда години.

ВИЗГЛЕД ПРИ КАМЕРА БИГЪЛ (Снимка от ровера Opportunity)



НАПРЕЧЕН РАЗРЕЗ

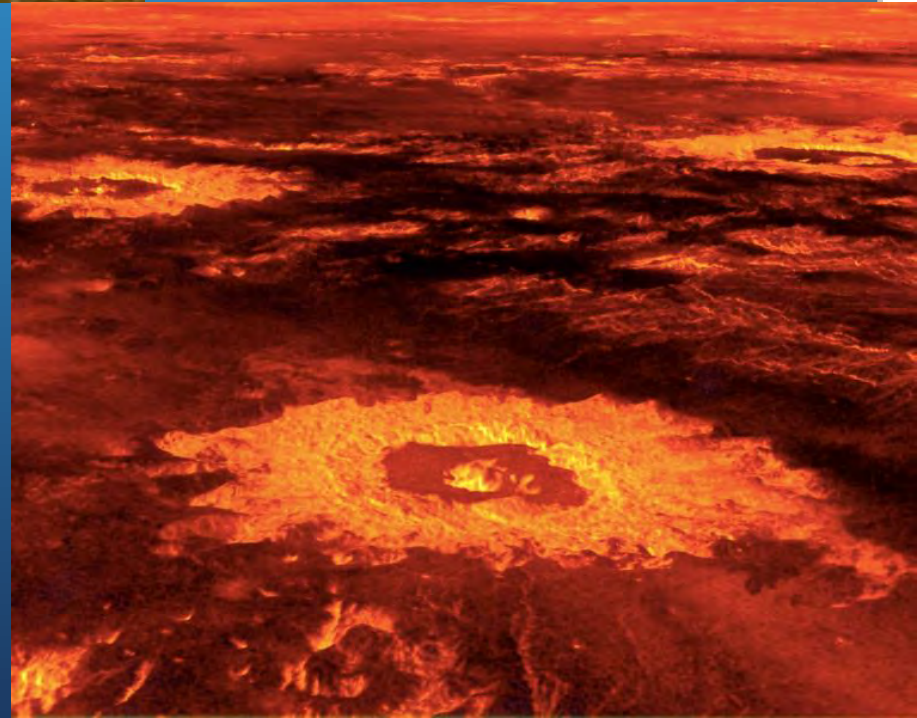


ПОВЪРХНОСТА НА МАРС
Лабиринт от транзитно ориентираните канали предизвиква изпитвателите за екстремна температура. Снимка: Materials Space Research Group, Будапешт, Унгария
http://planetologia.hu
DTM в Милан: M.C.S. M.O.A.
Карта © Miskolc Matton, 2002
Миланско общество: SkyLine
www.Marsociety.bg

ОРБИТАЛНИ ПАРАМЕТРИ НА МАРС

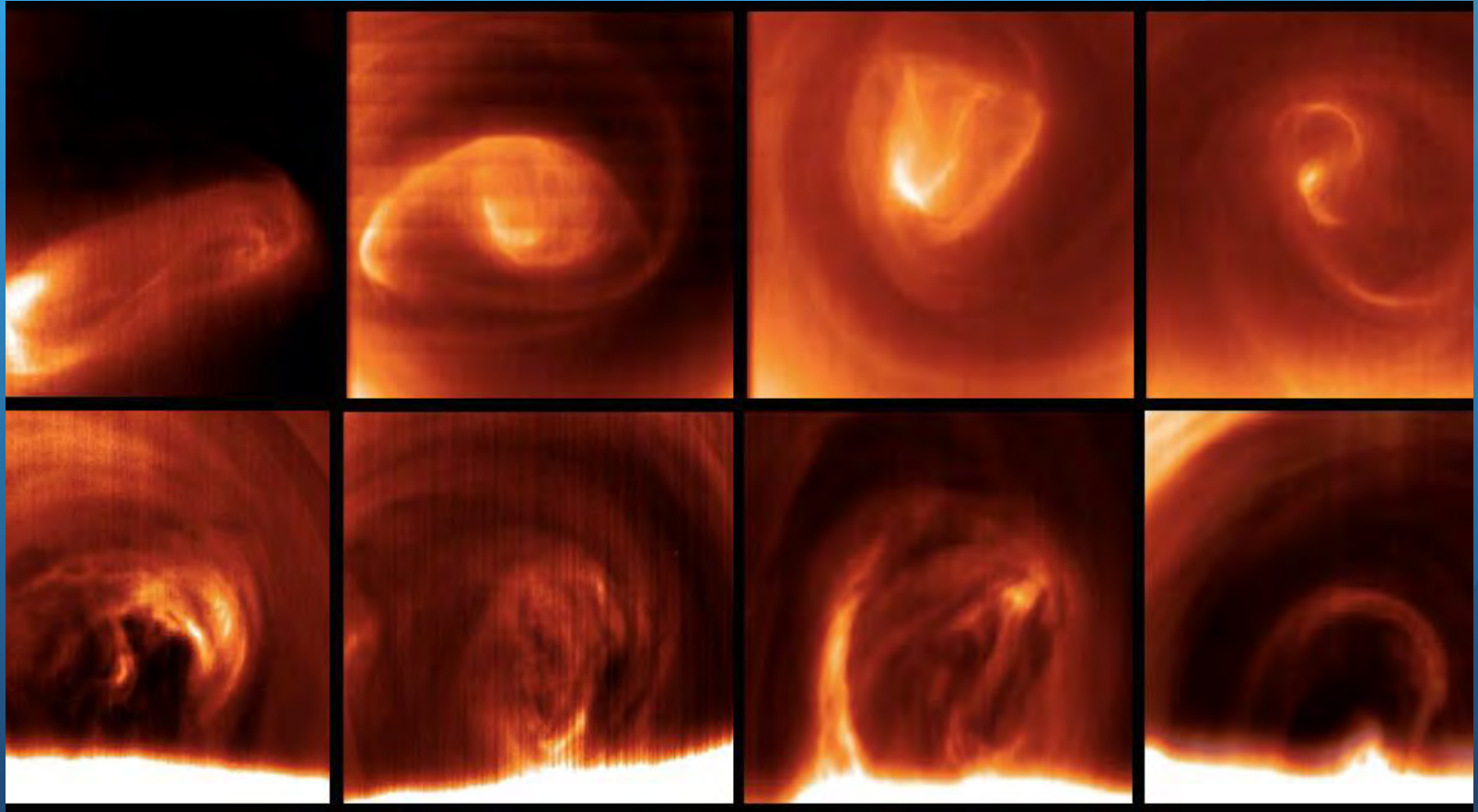


ДАННИ ЗА КОЛИЧЕСТВО НА ВЪЗДУХА НА ПОВЪРХНОСТА НА МАРС. Снимка: NASA/JPL.



Venus - Fujiwhara Effect?



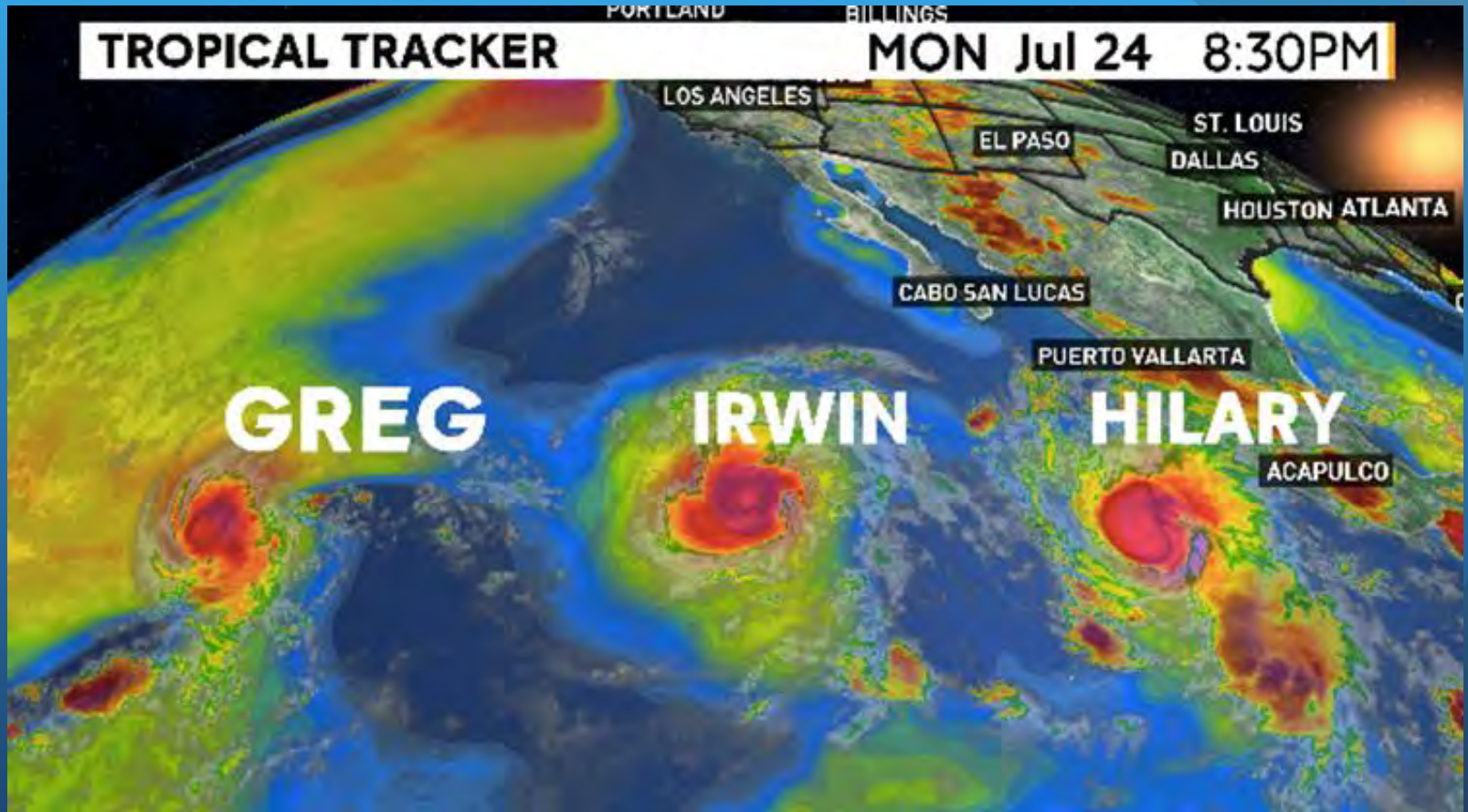


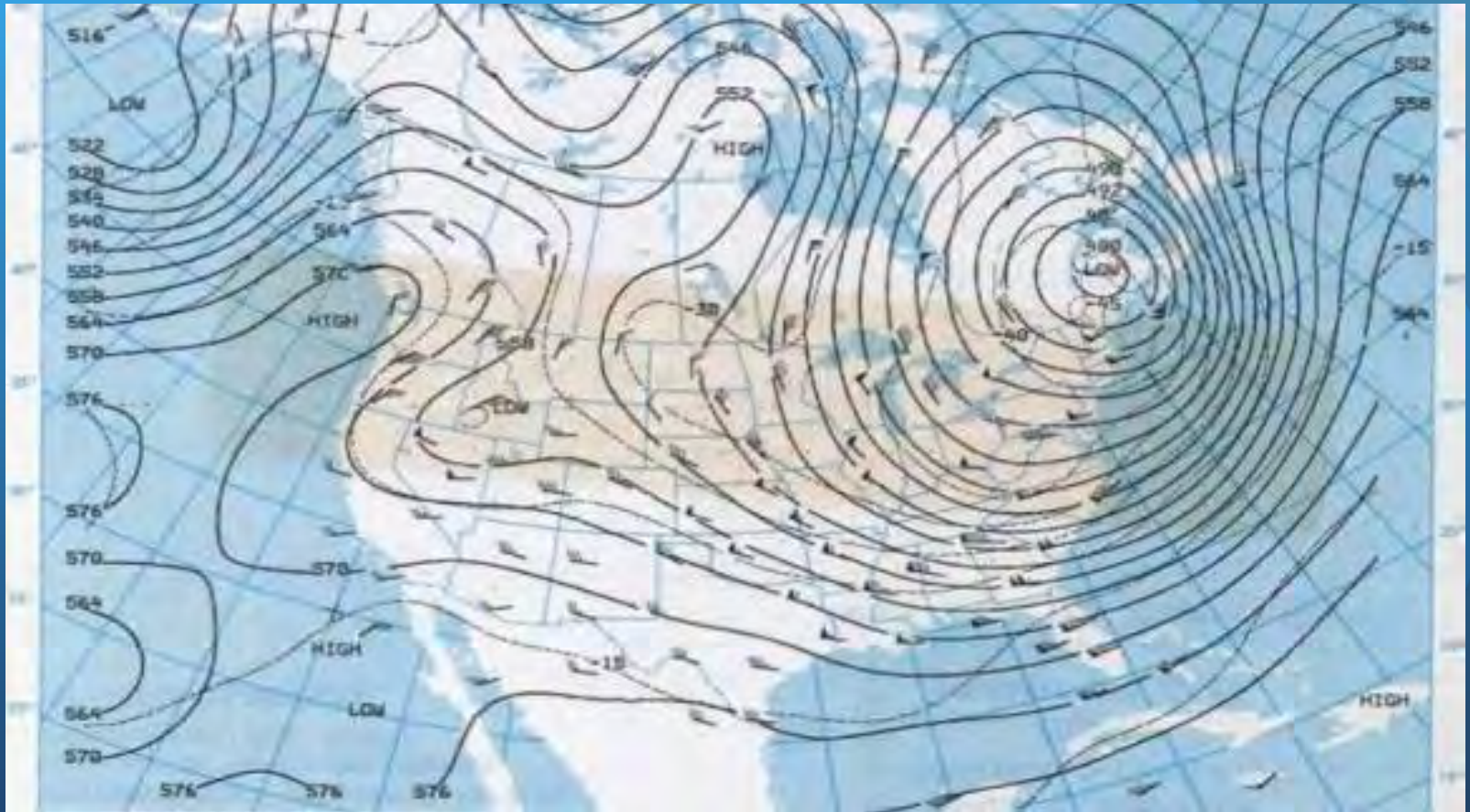
Typhoon Parma and Melor (October 6 2009)

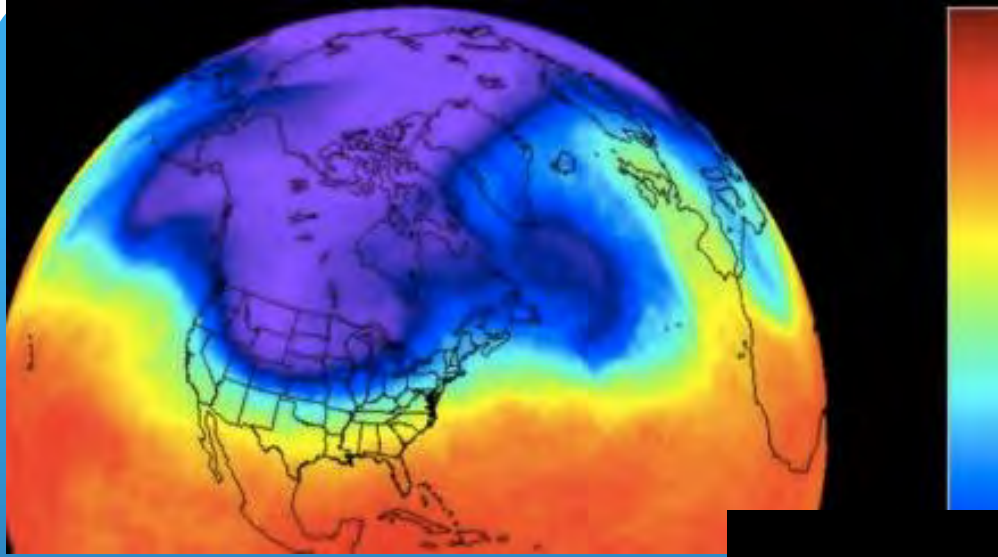


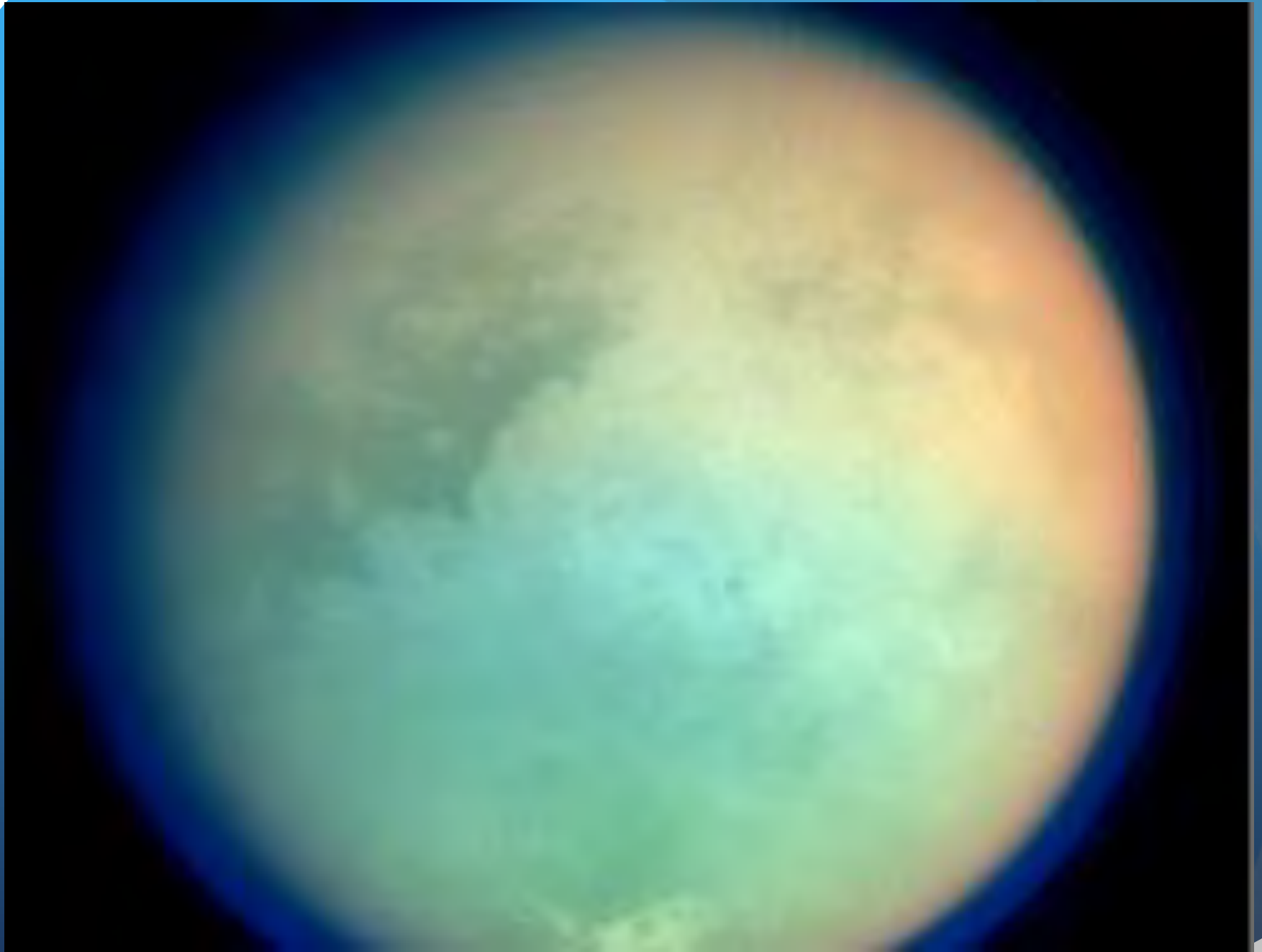
TROPICAL TRACKER

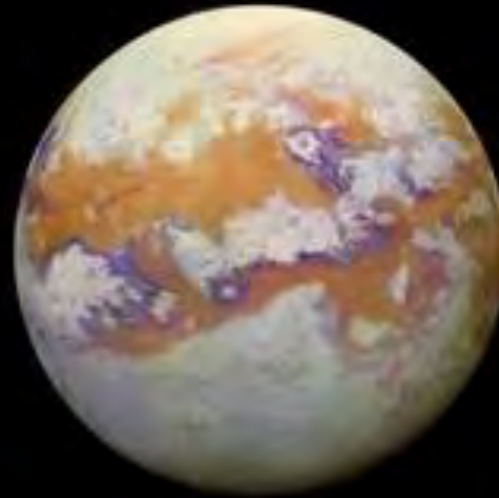
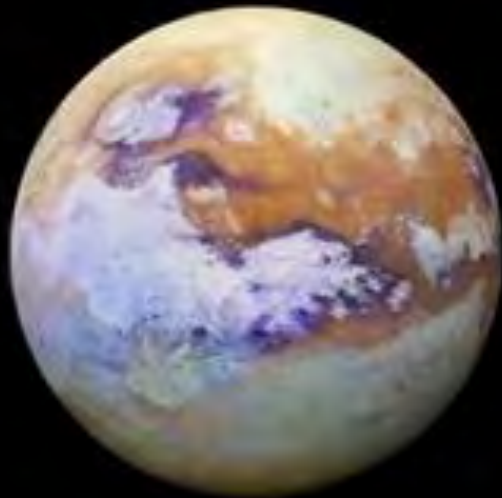
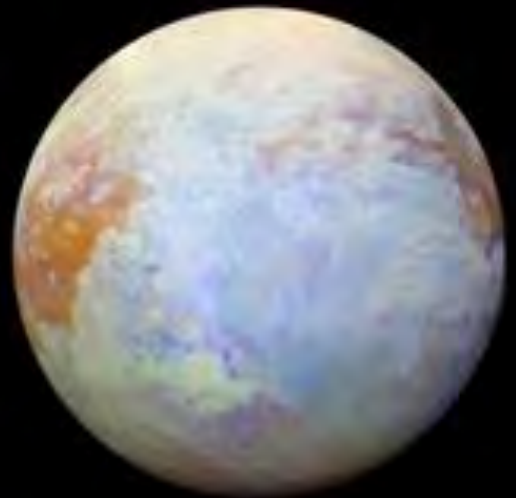
MON Jul 24 8:30PM

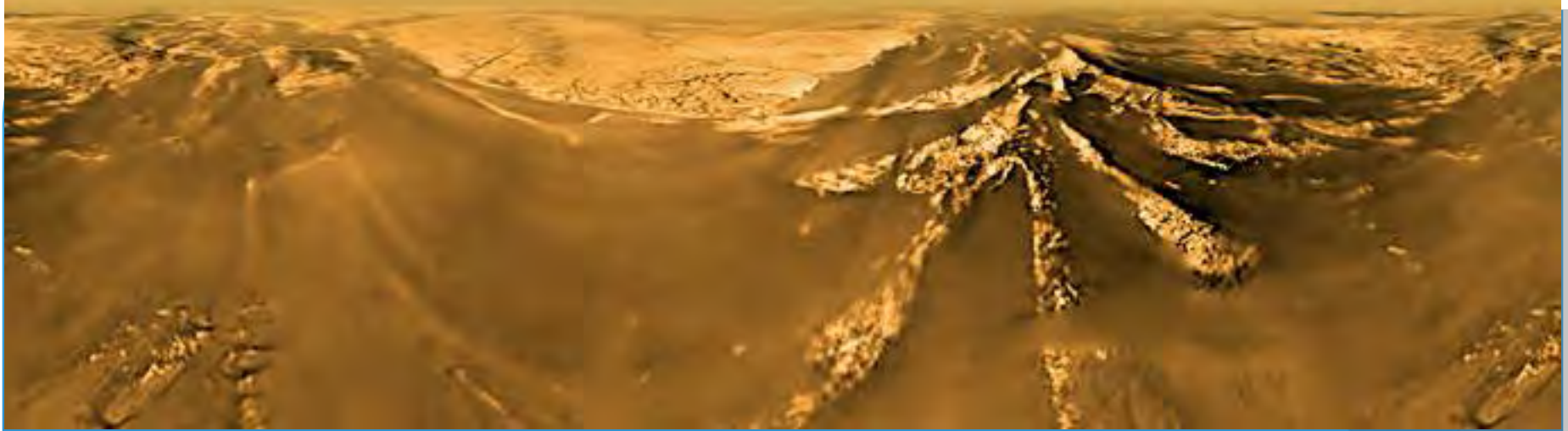




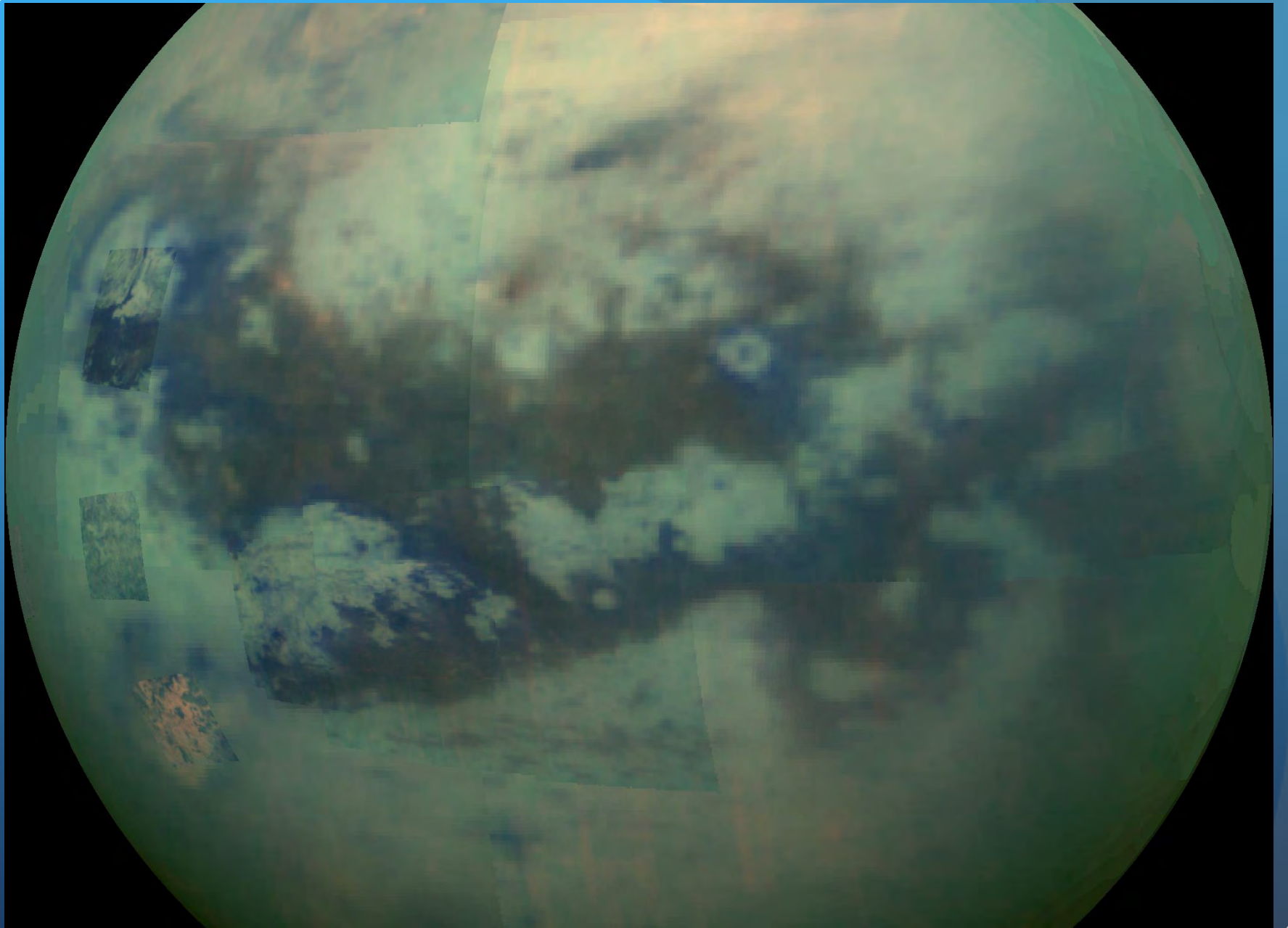


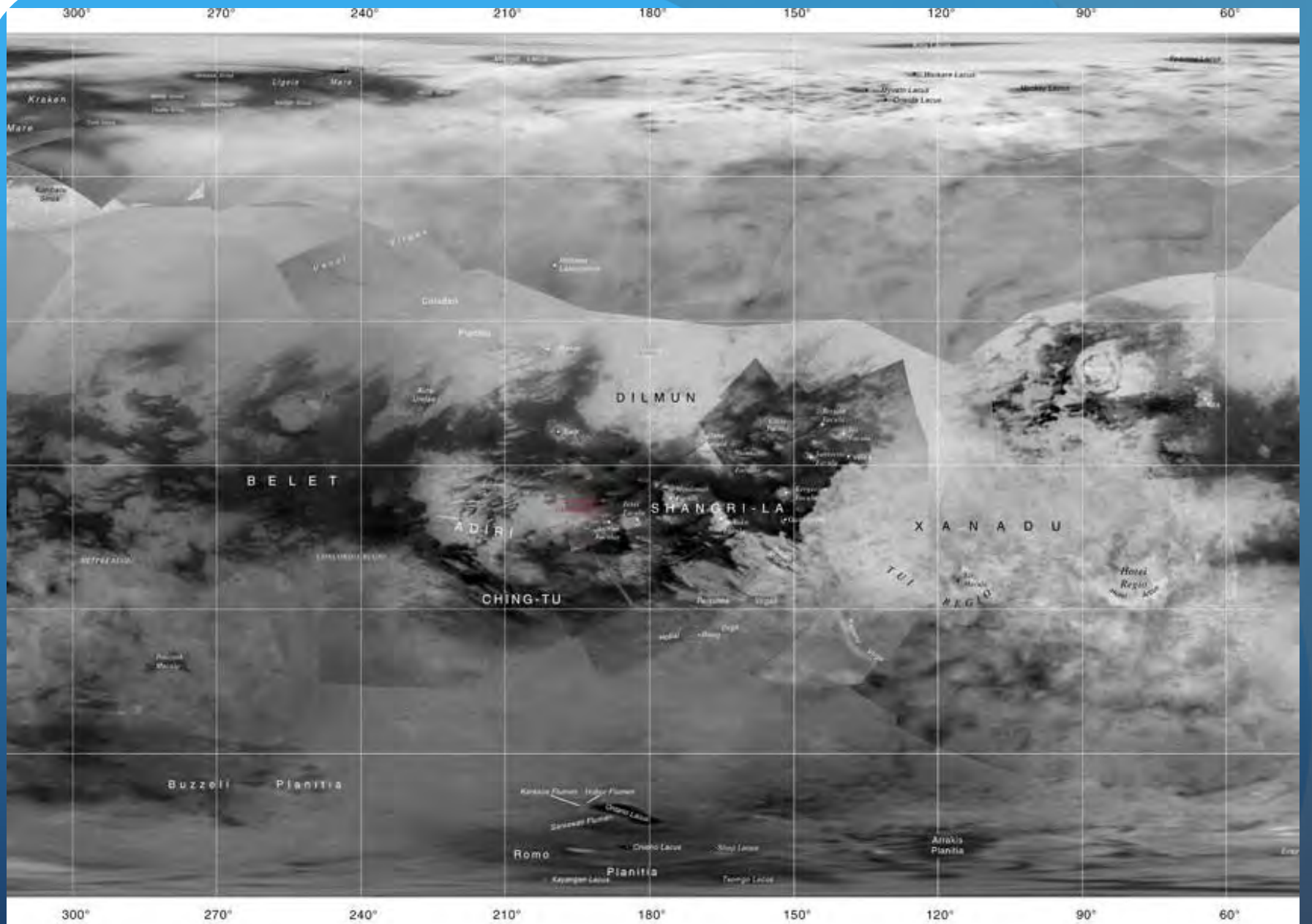


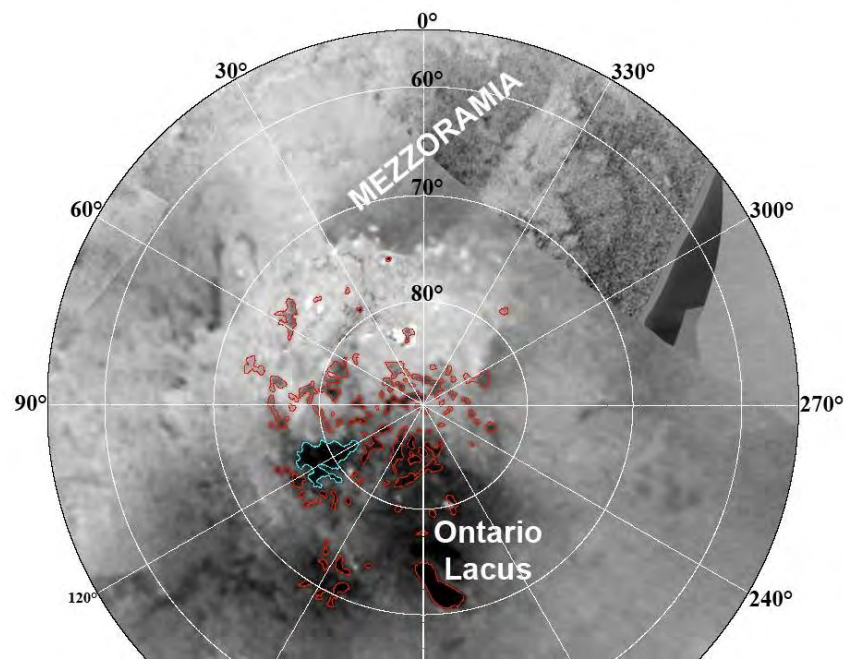
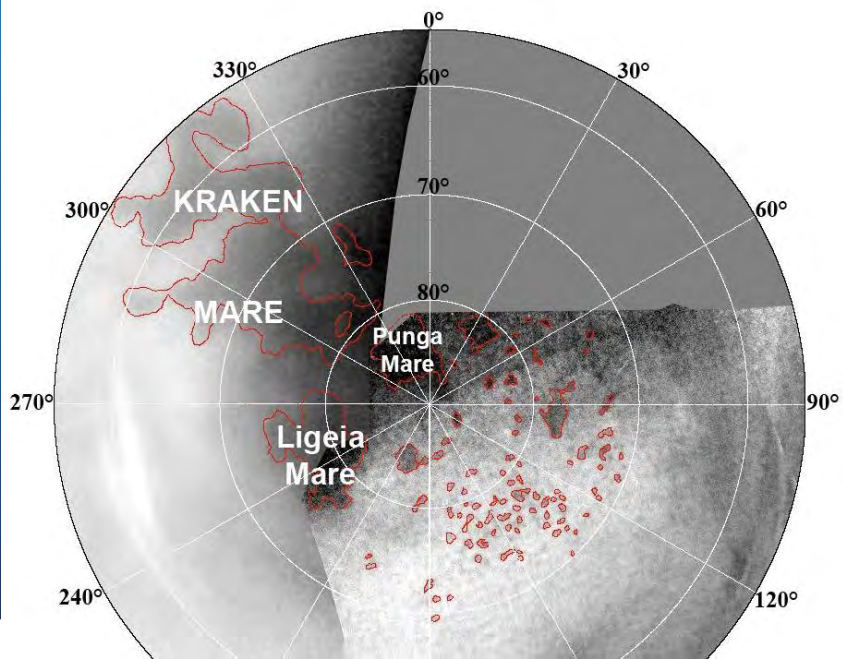
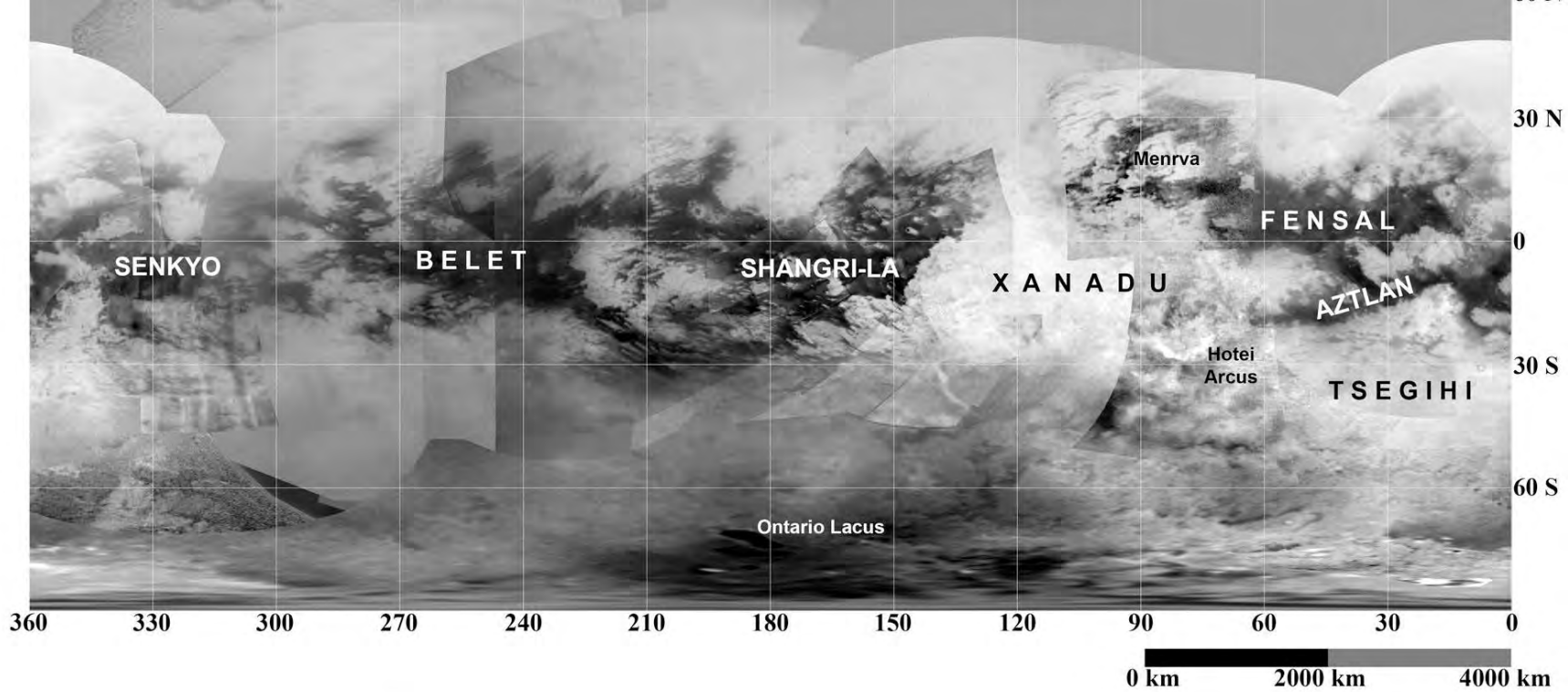


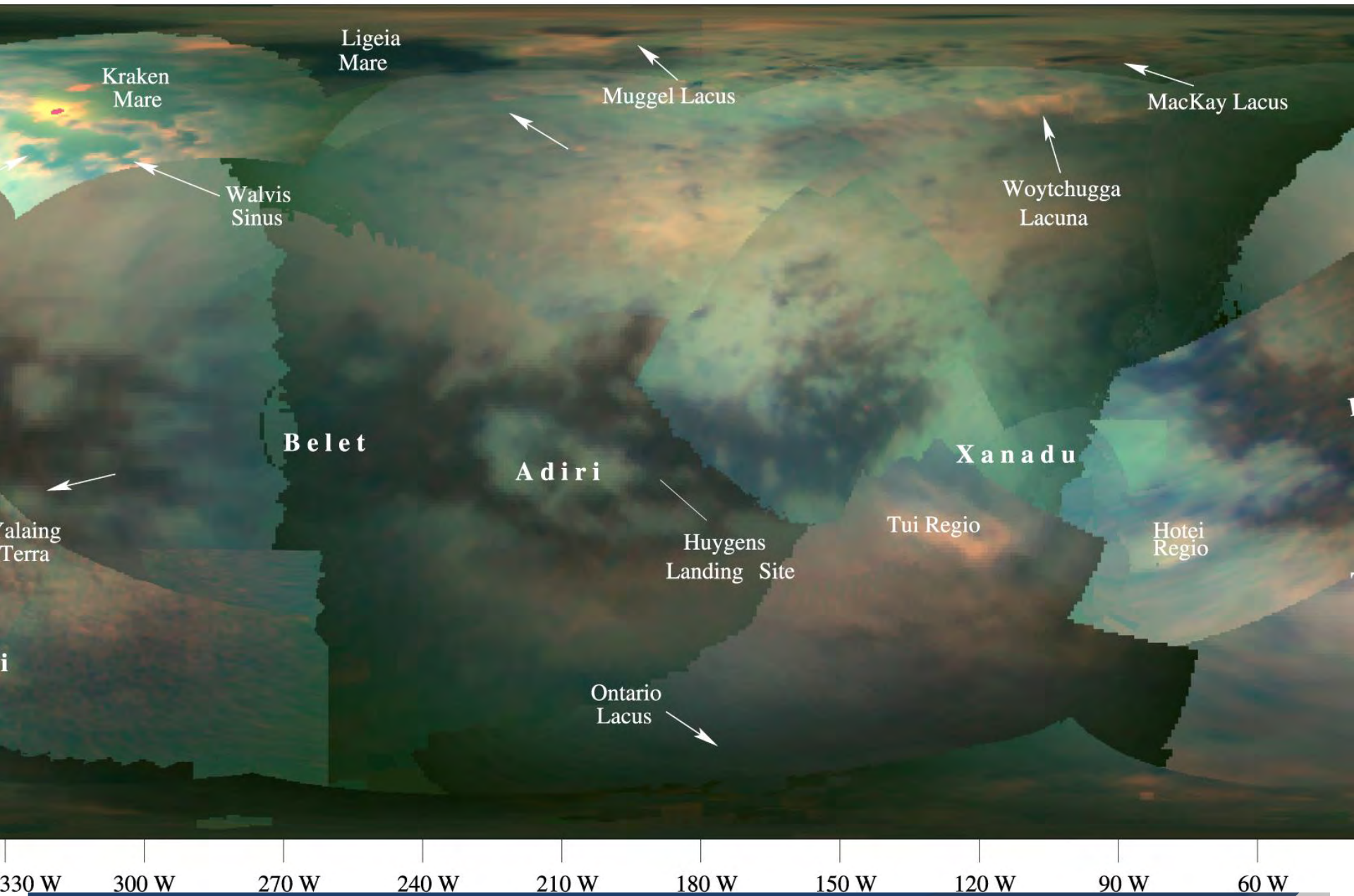


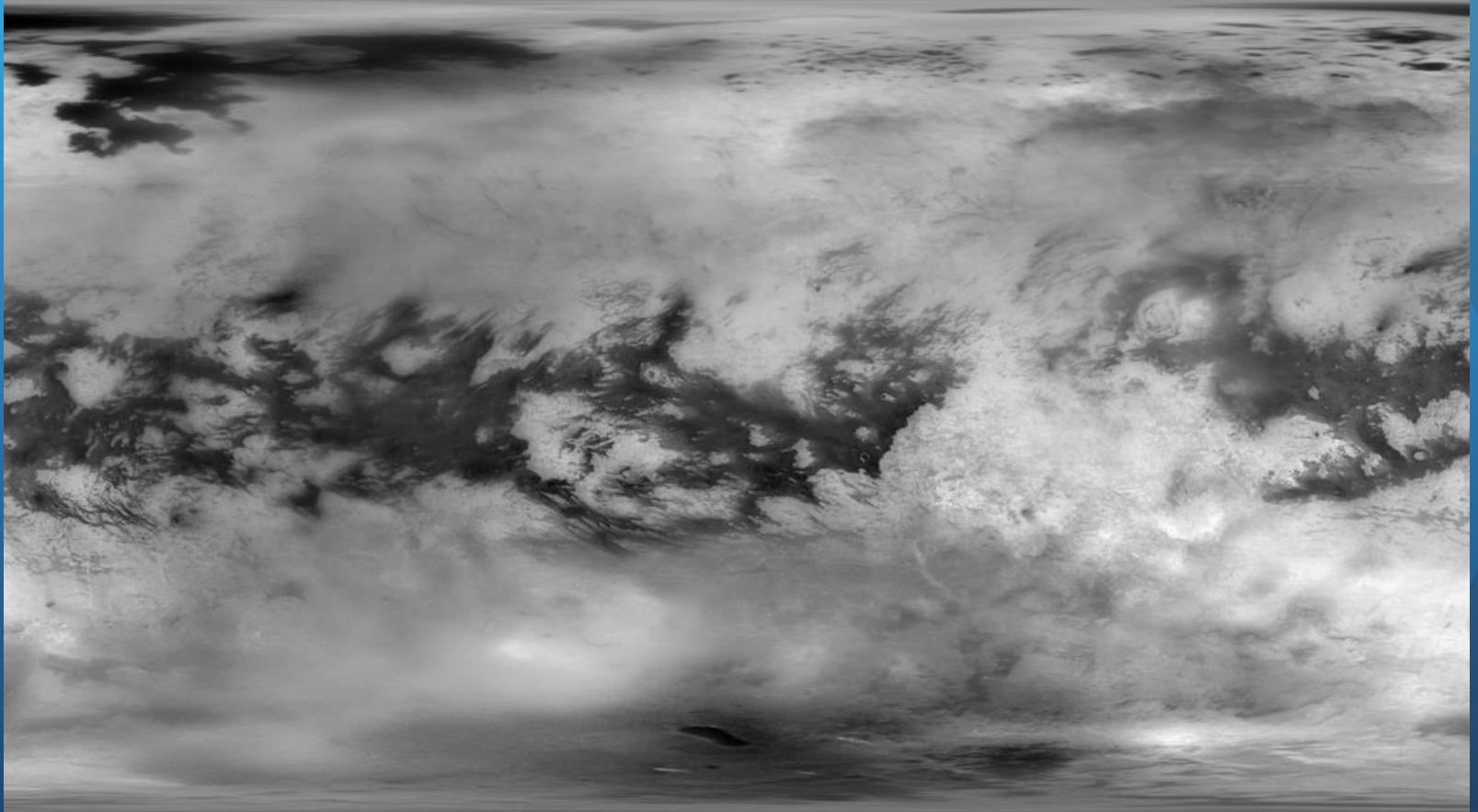




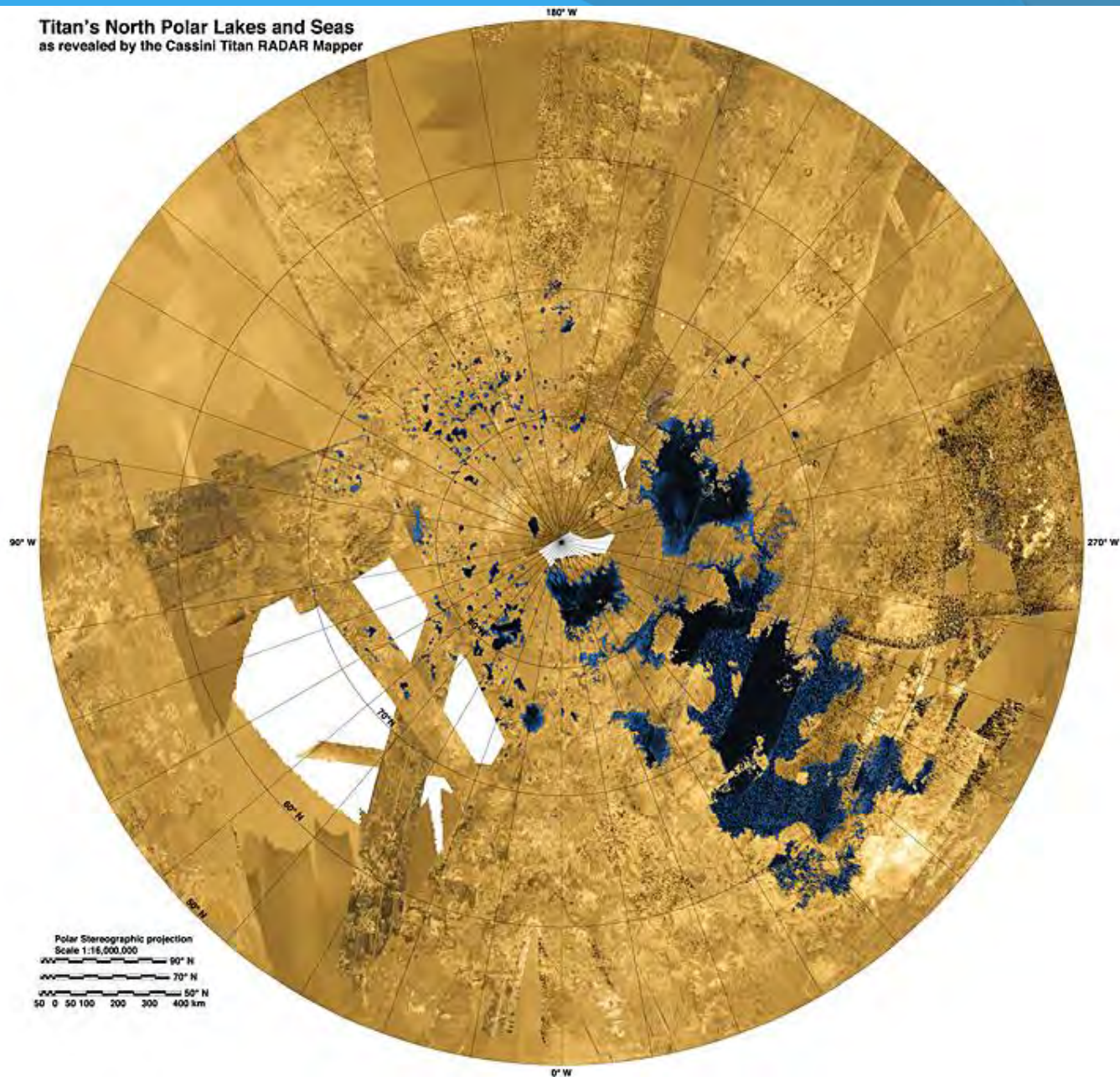


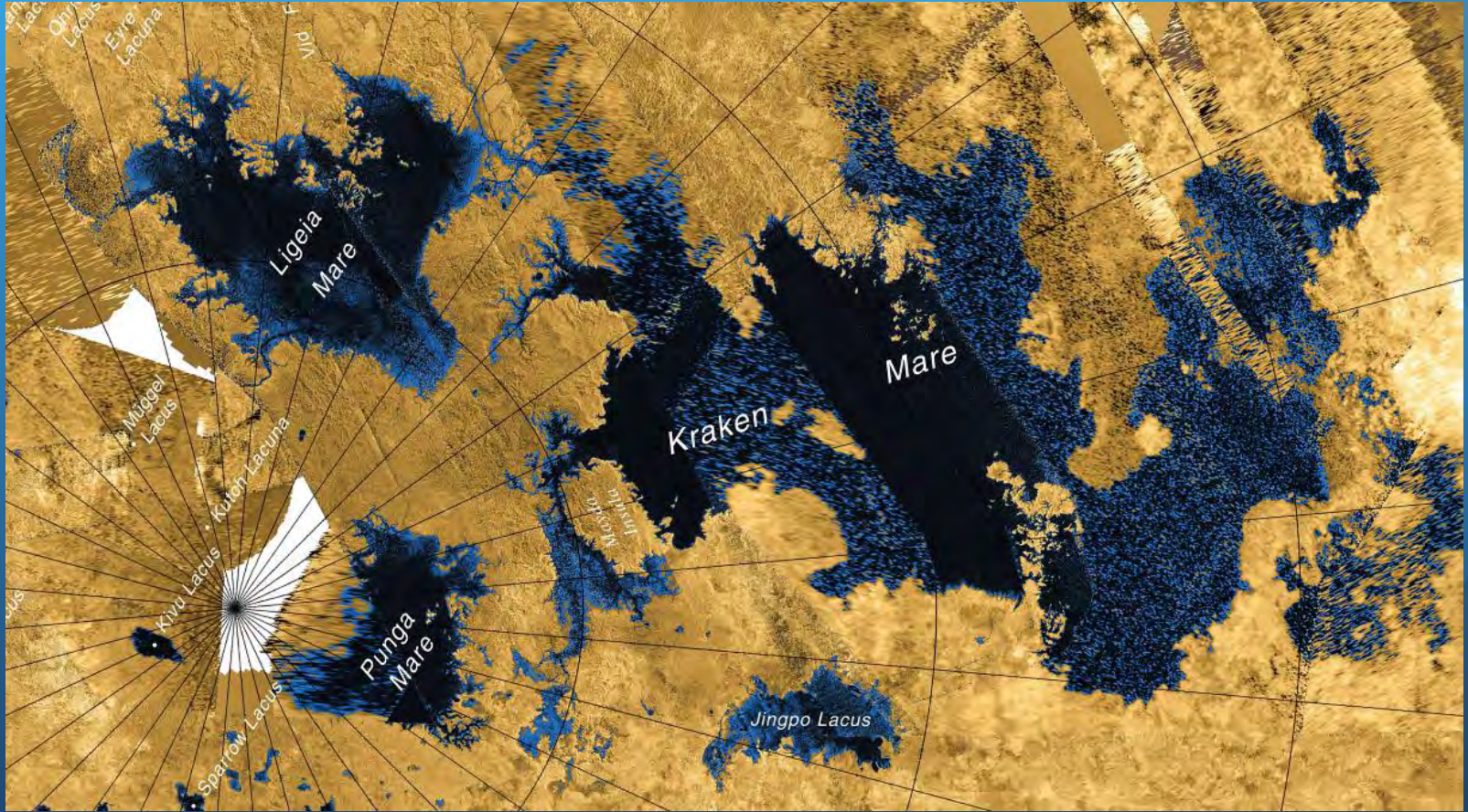


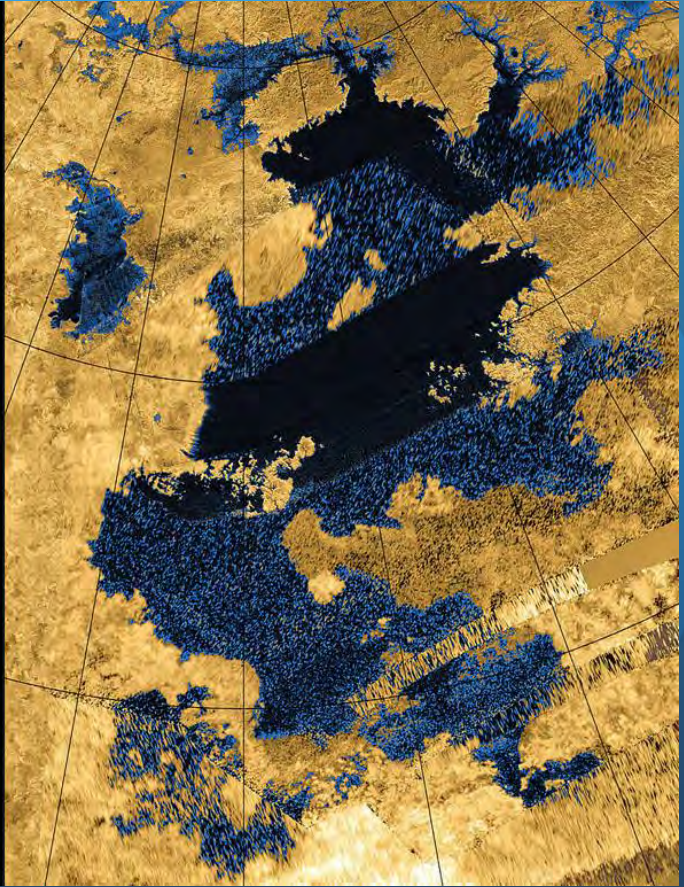
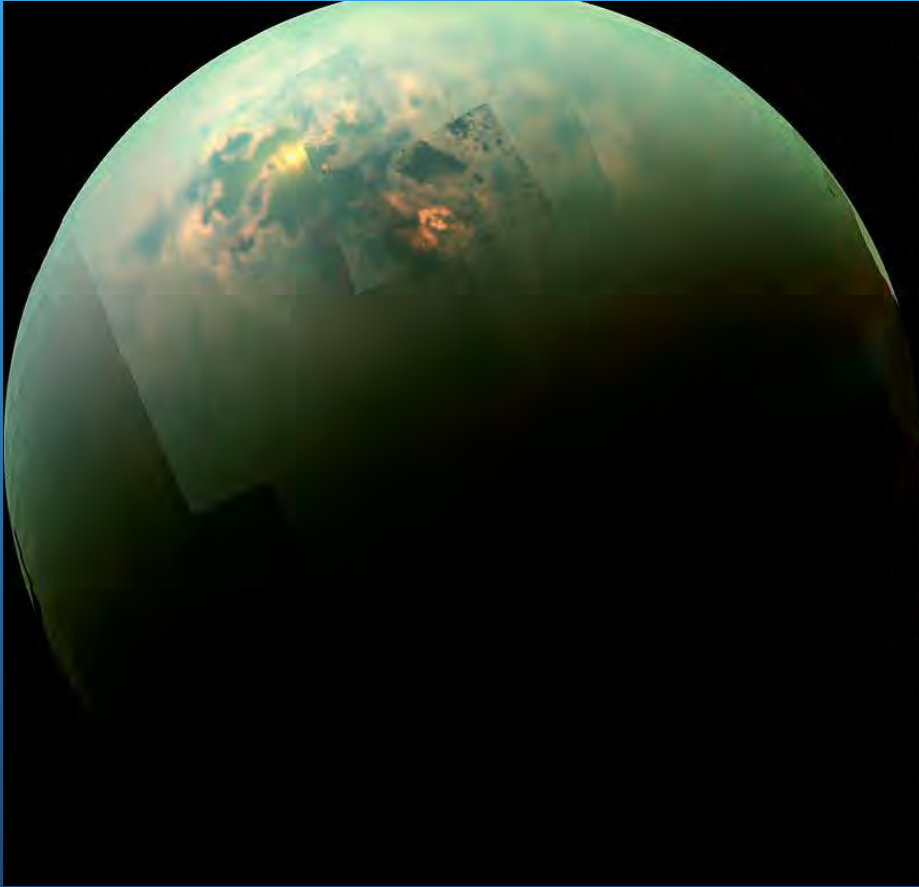




Titan's North Polar Lakes and Seas
as revealed by the Cassini Titan RADAR Mapper



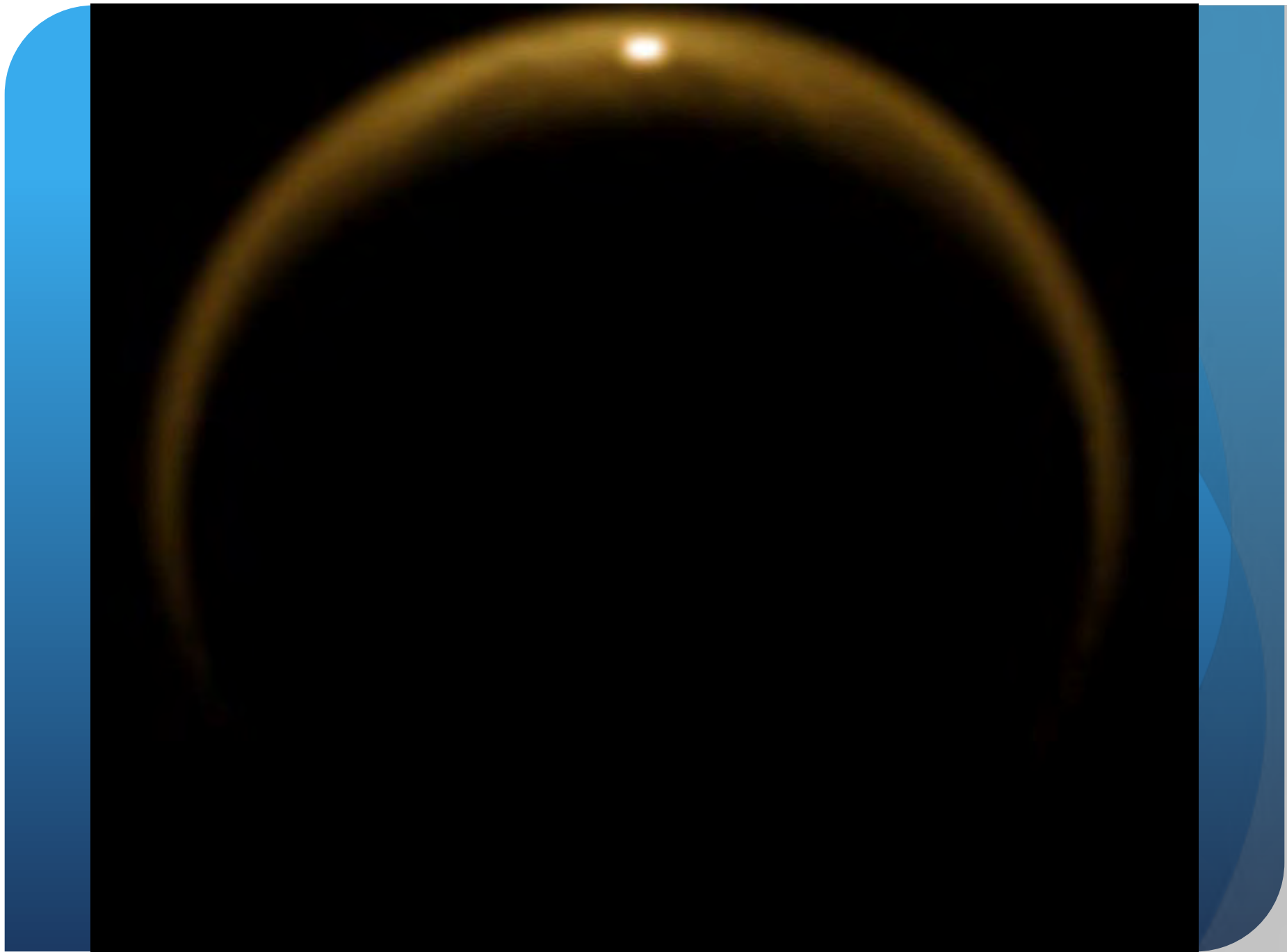


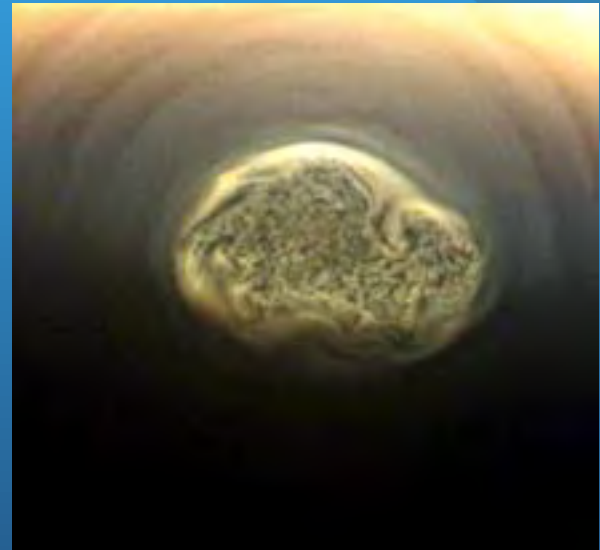
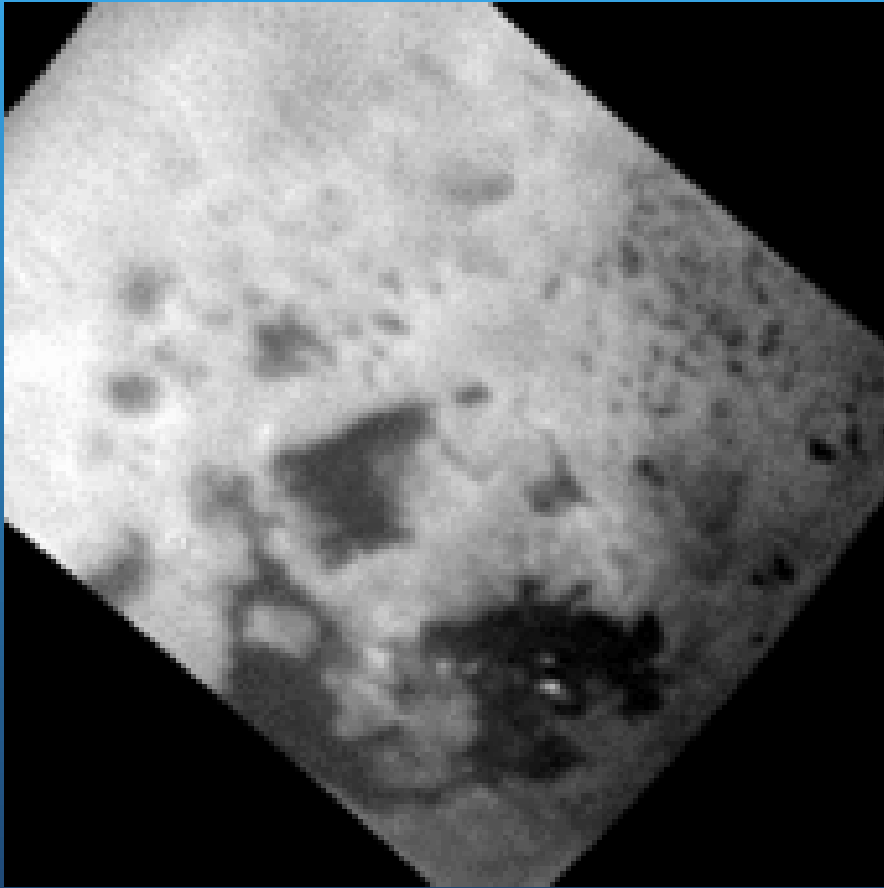


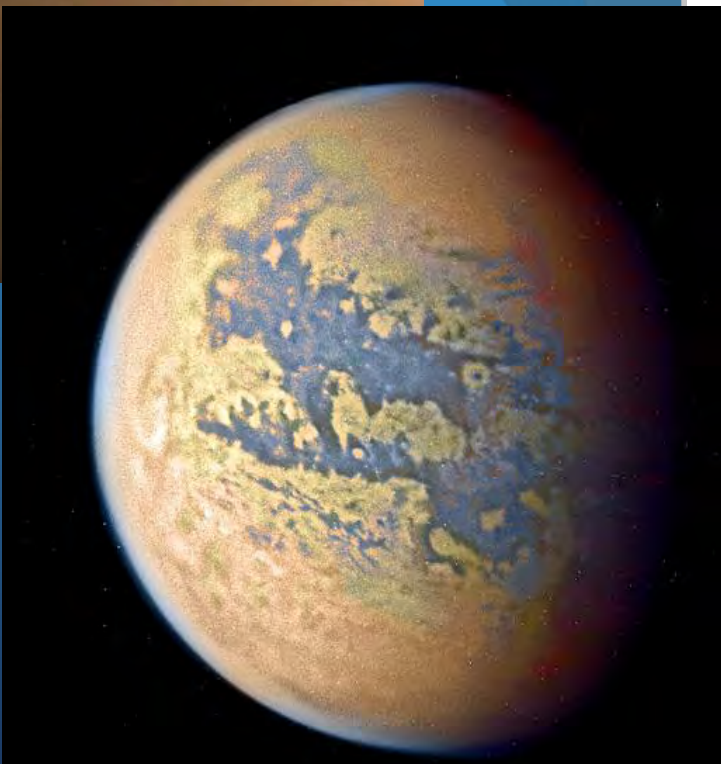
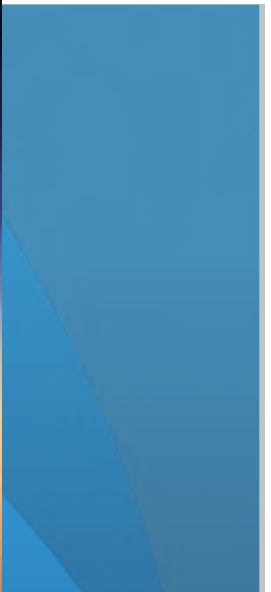
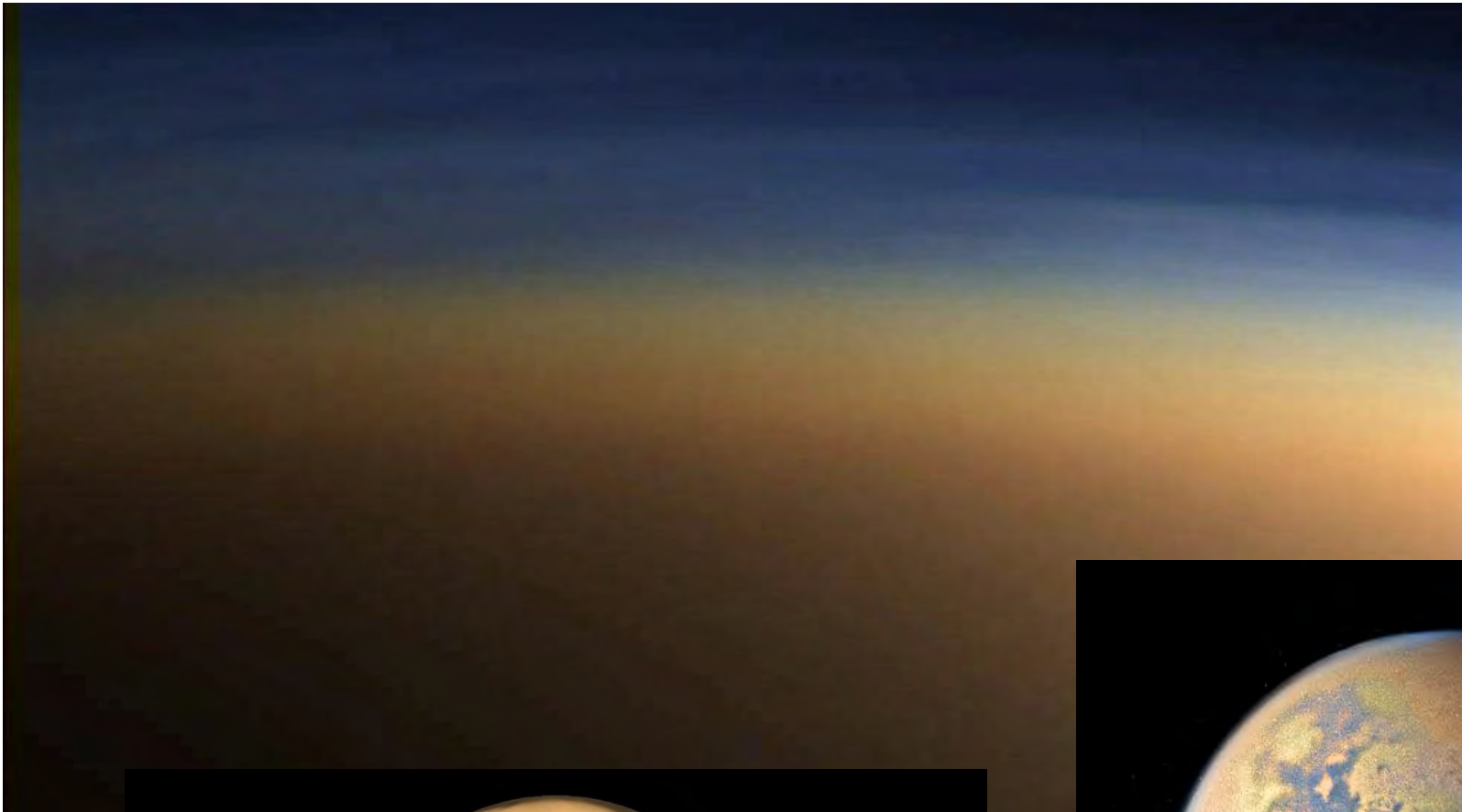


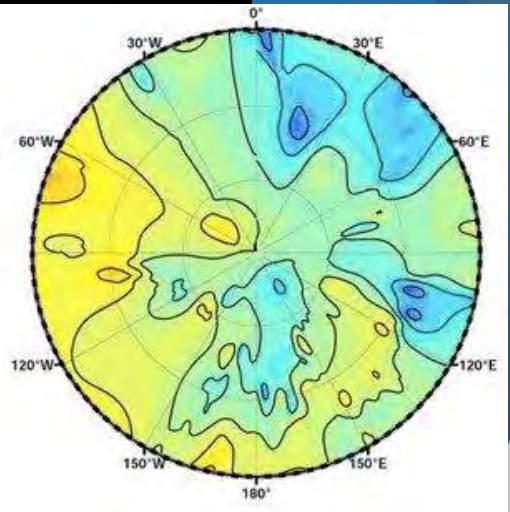
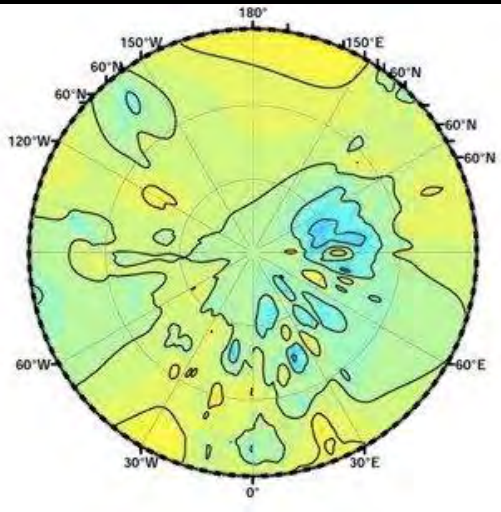
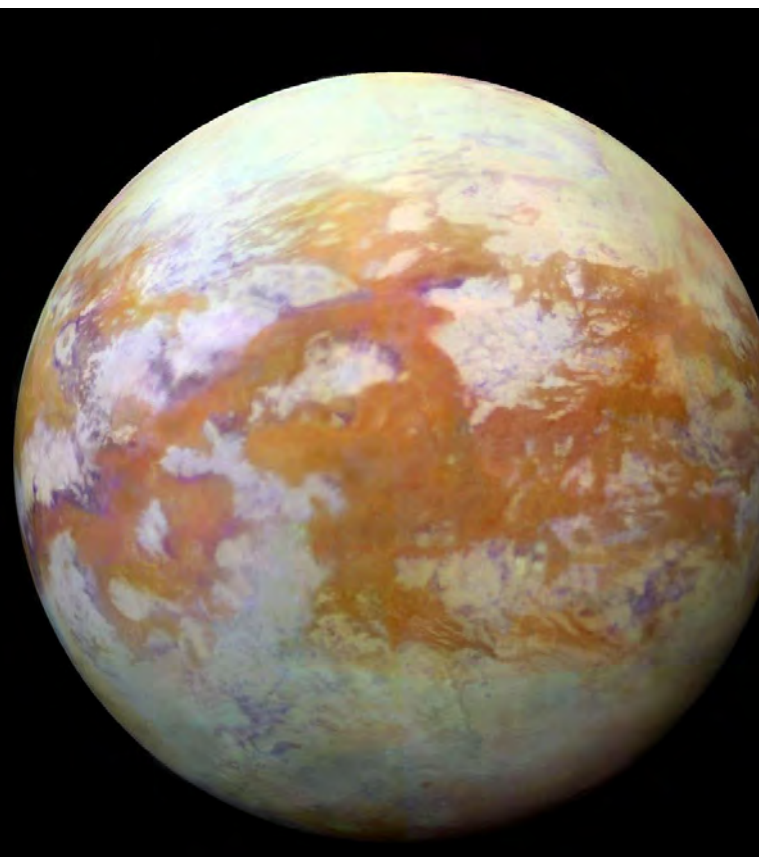
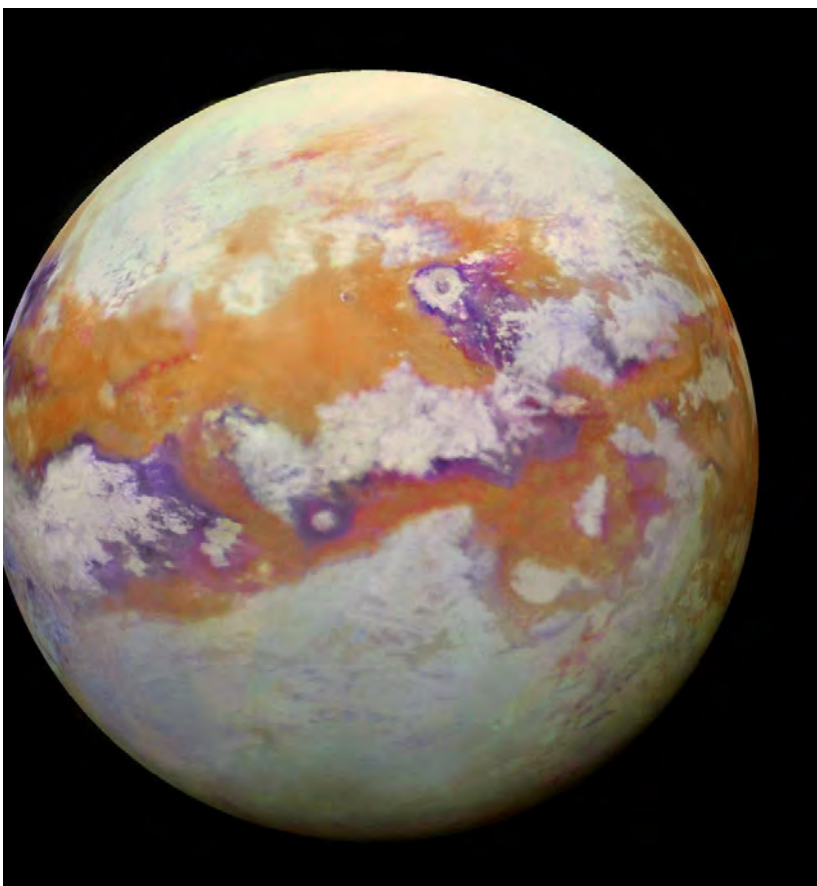
Titan

Lake Superior



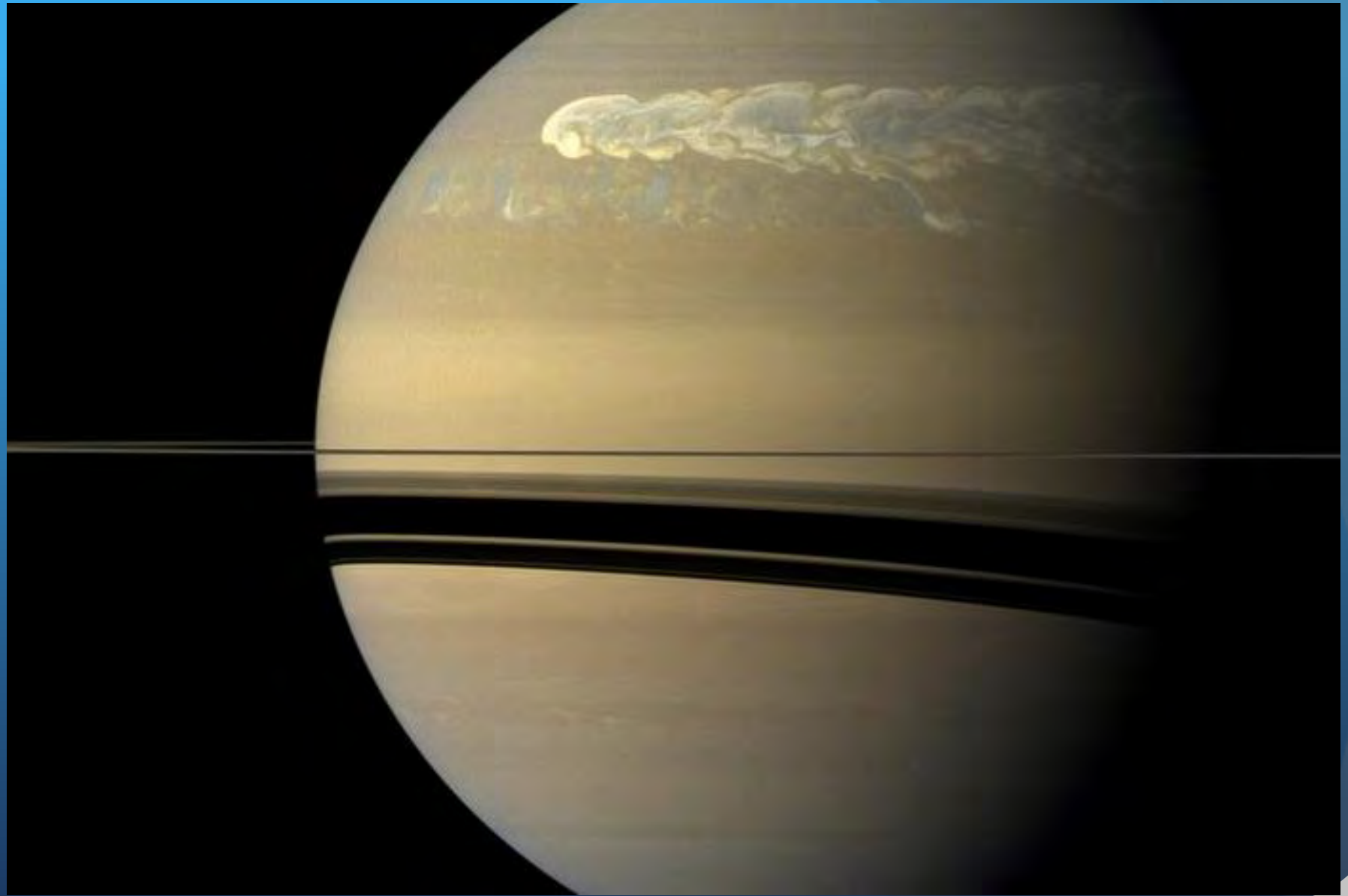


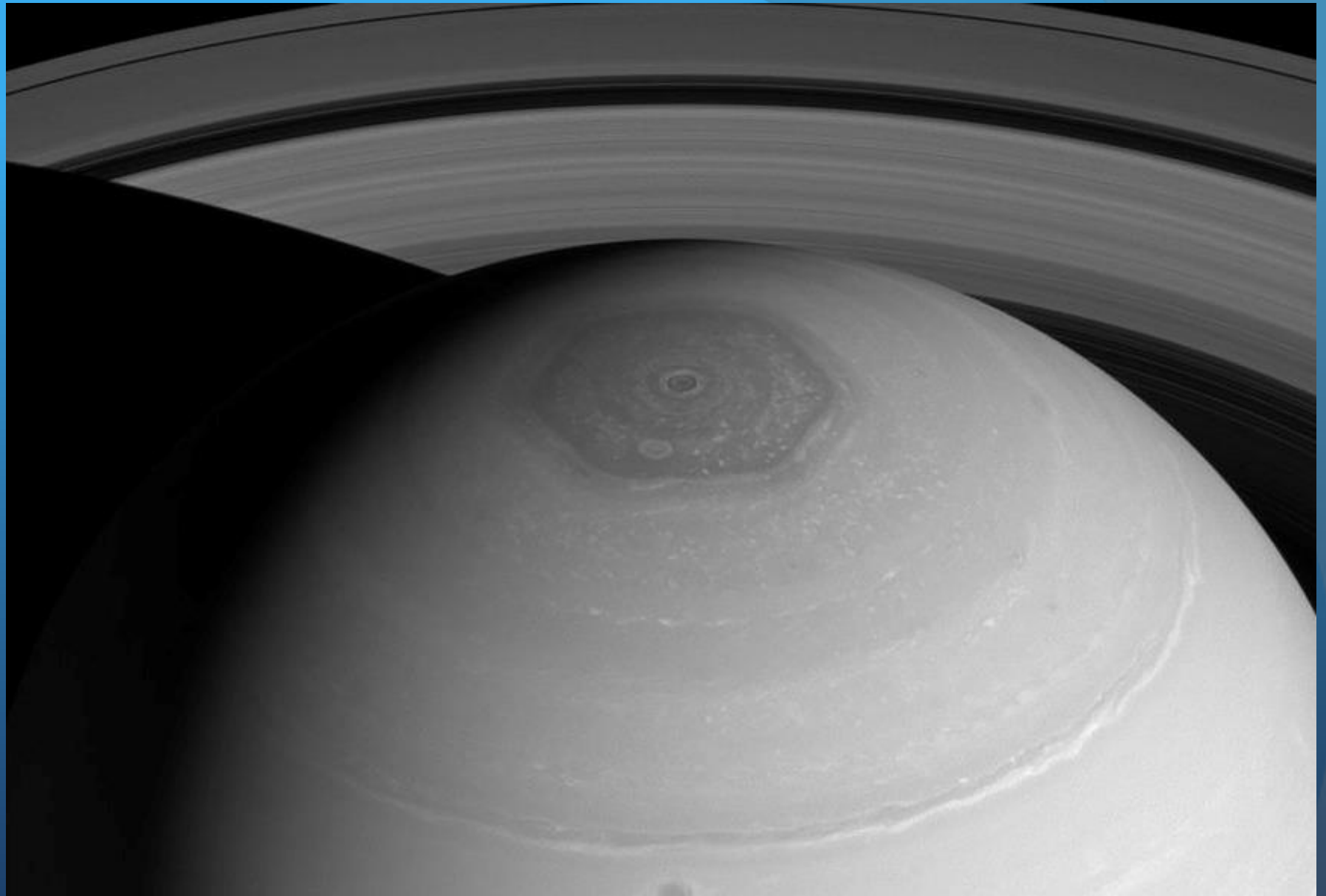


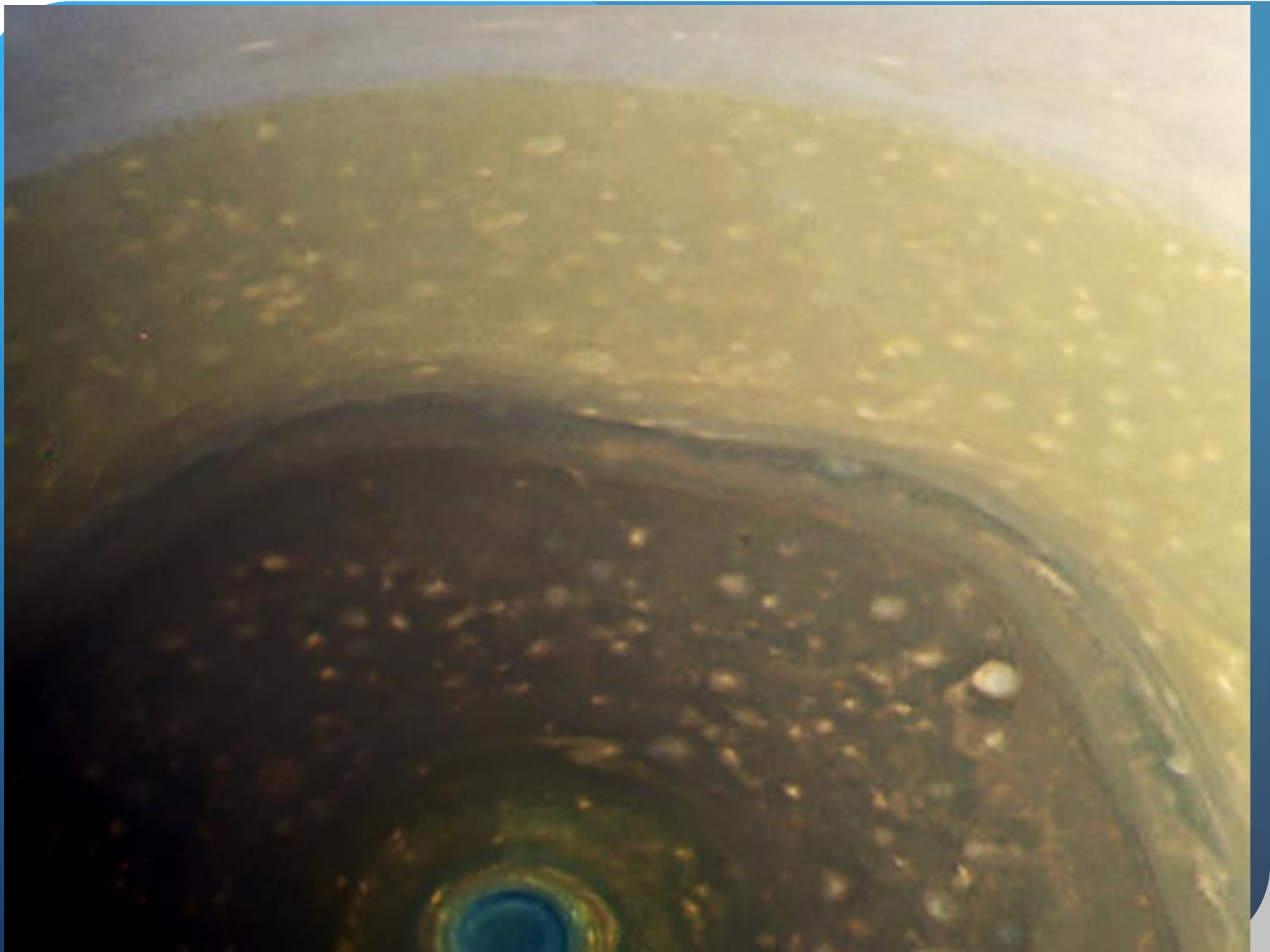


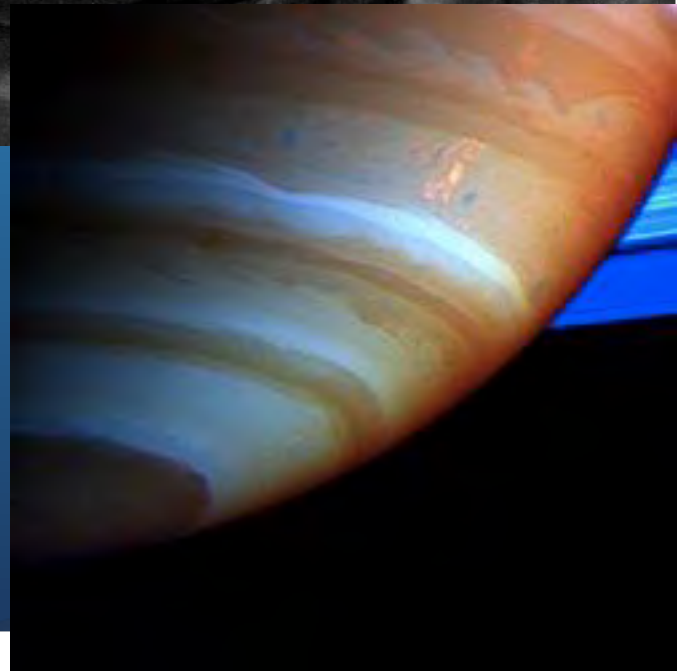
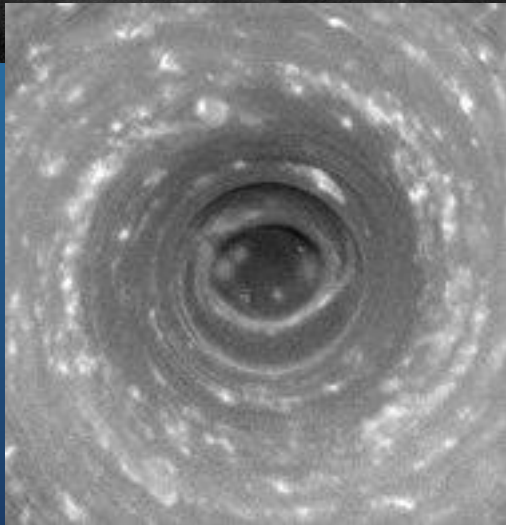
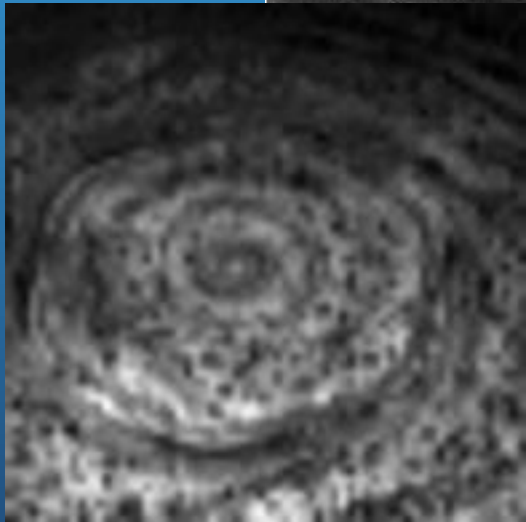
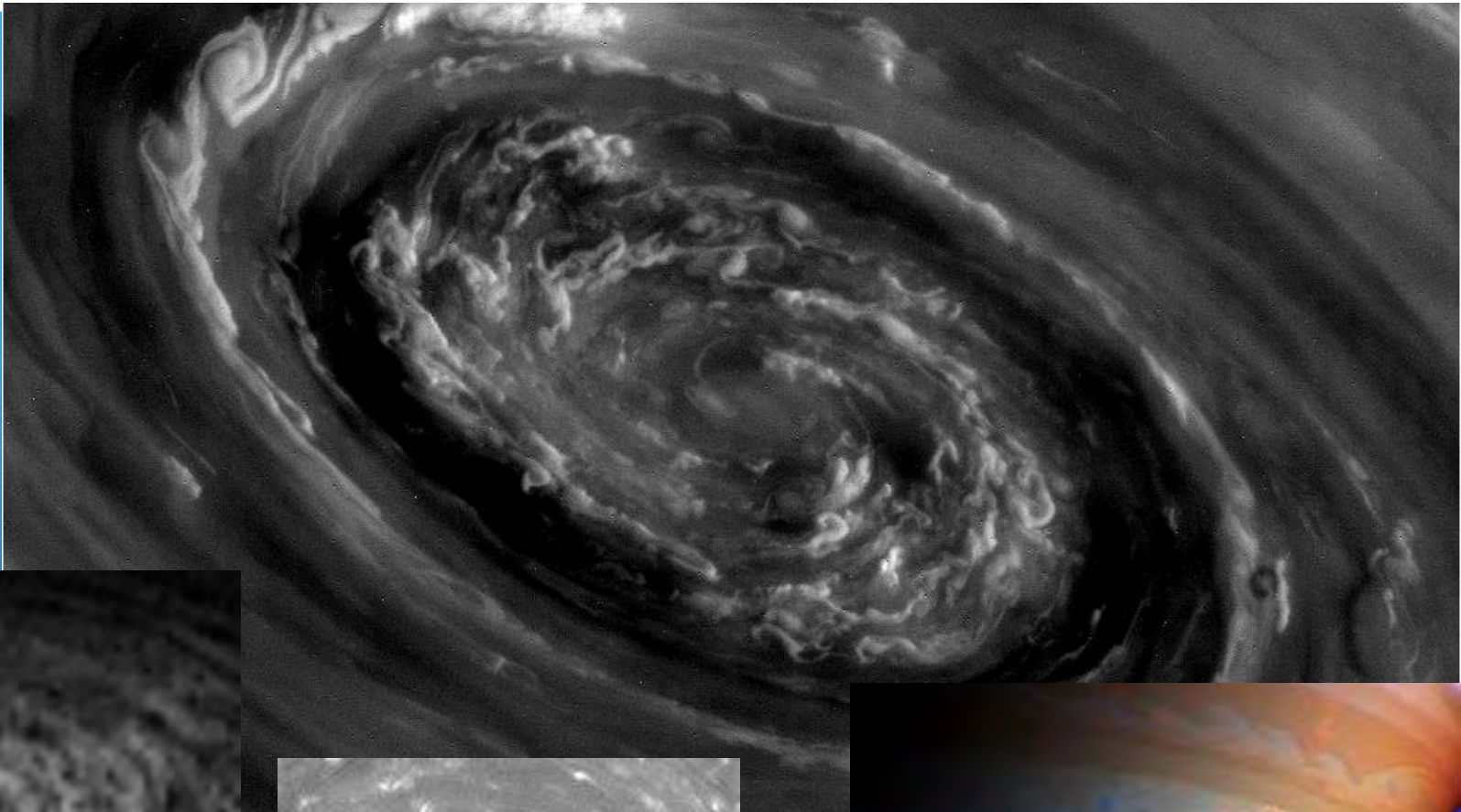


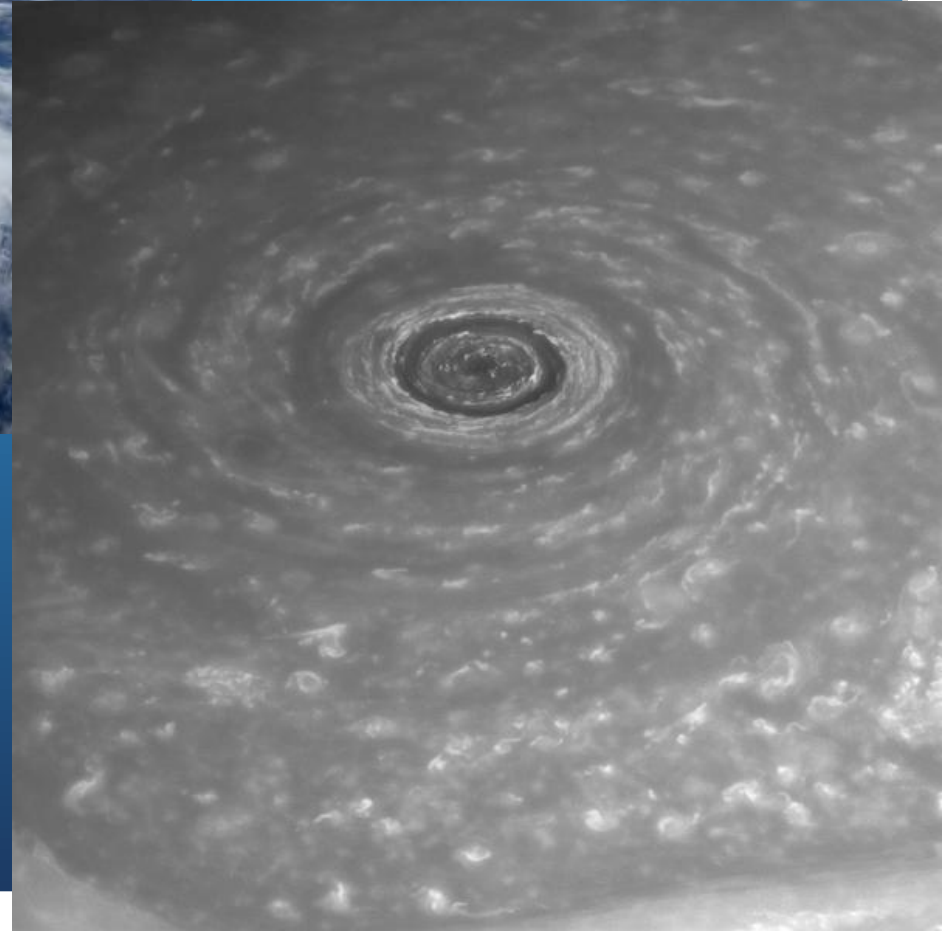
2011

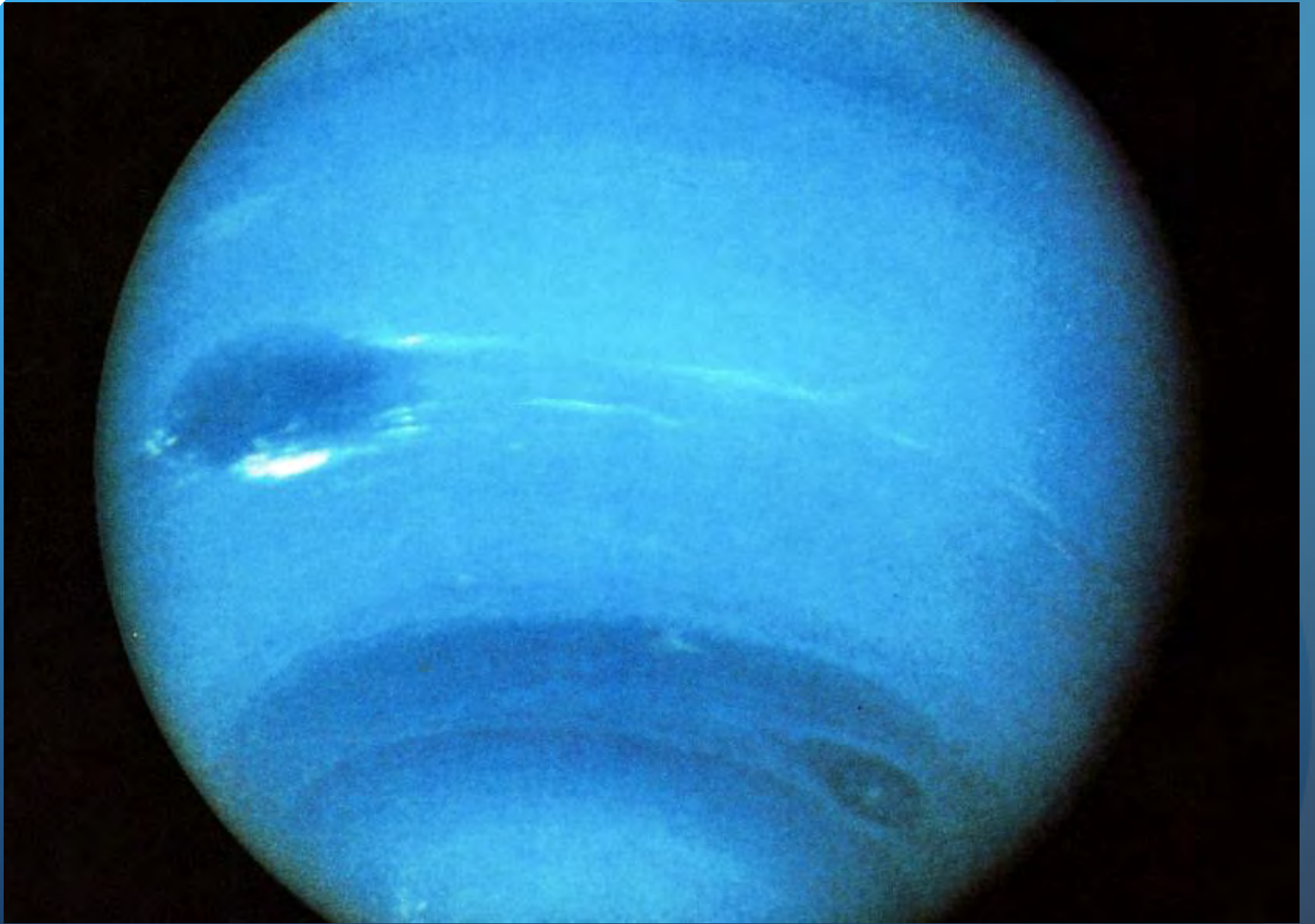


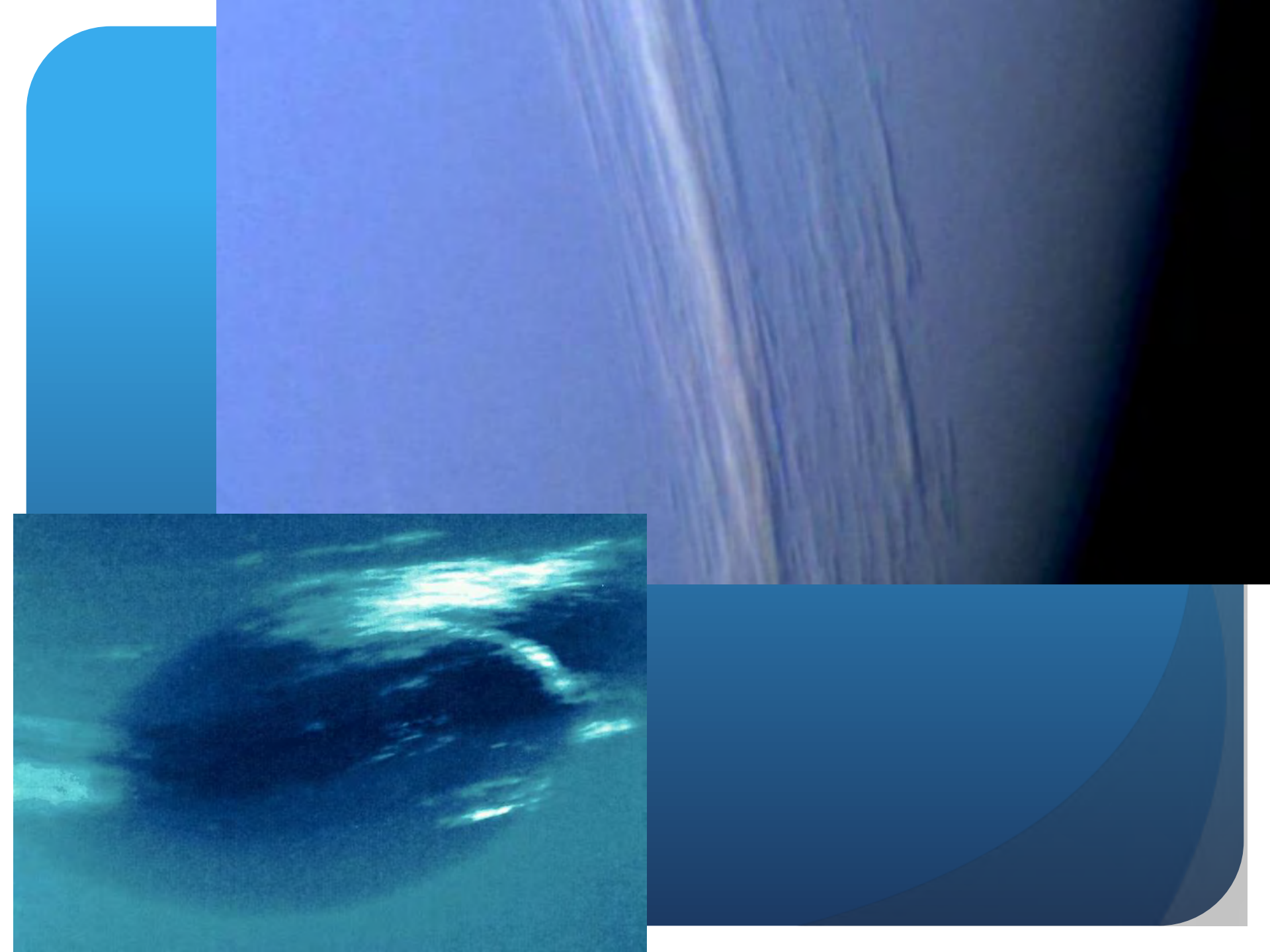


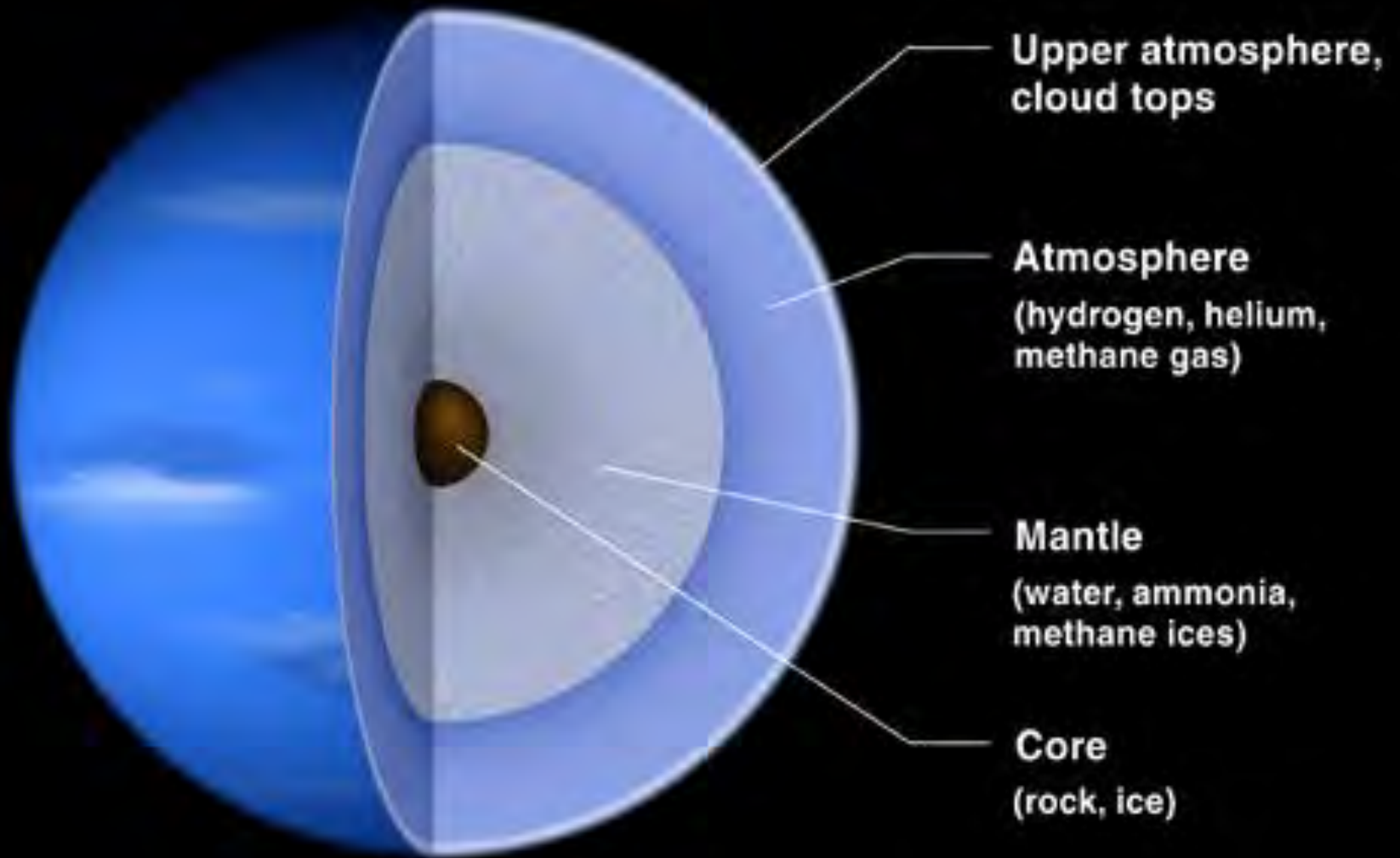




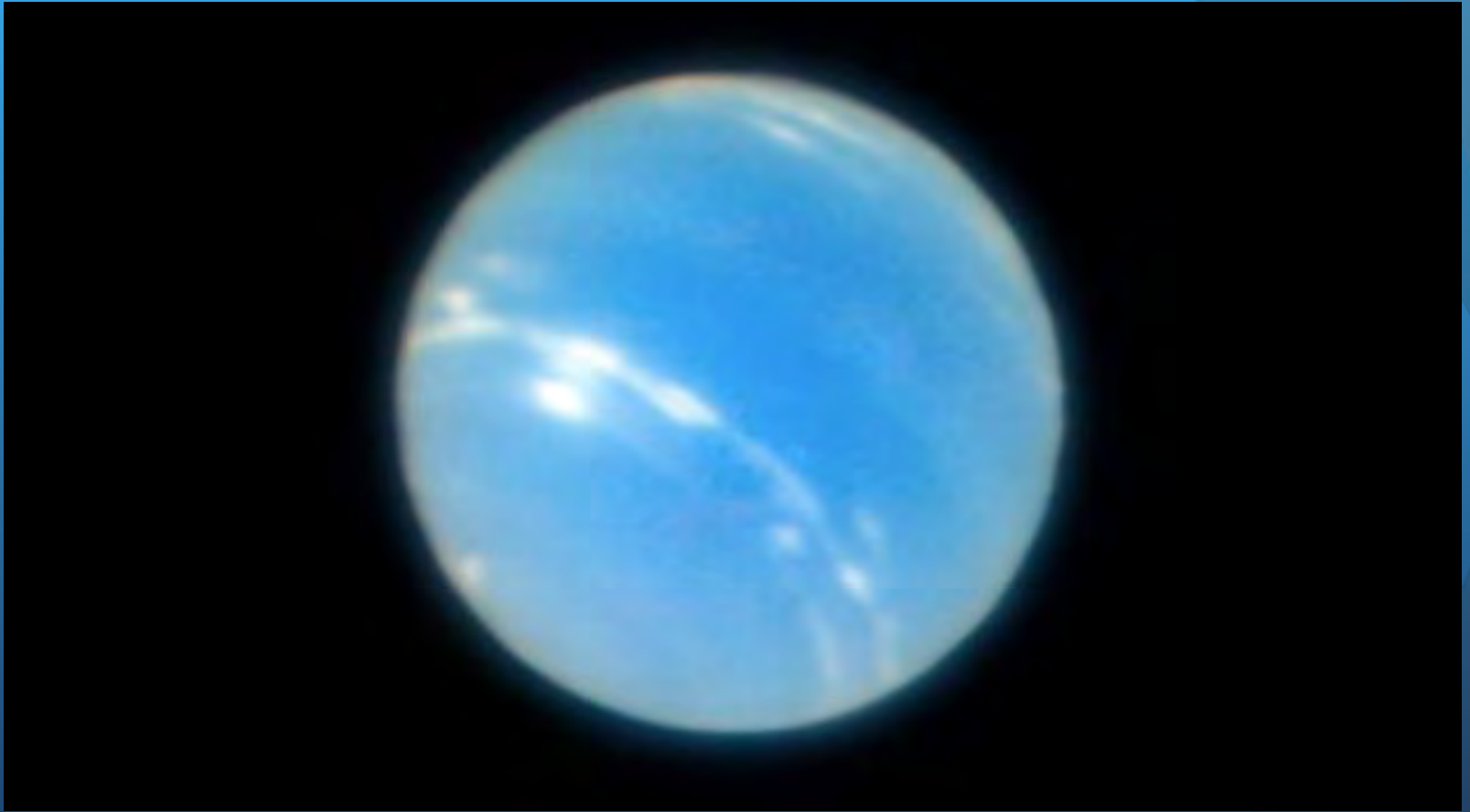


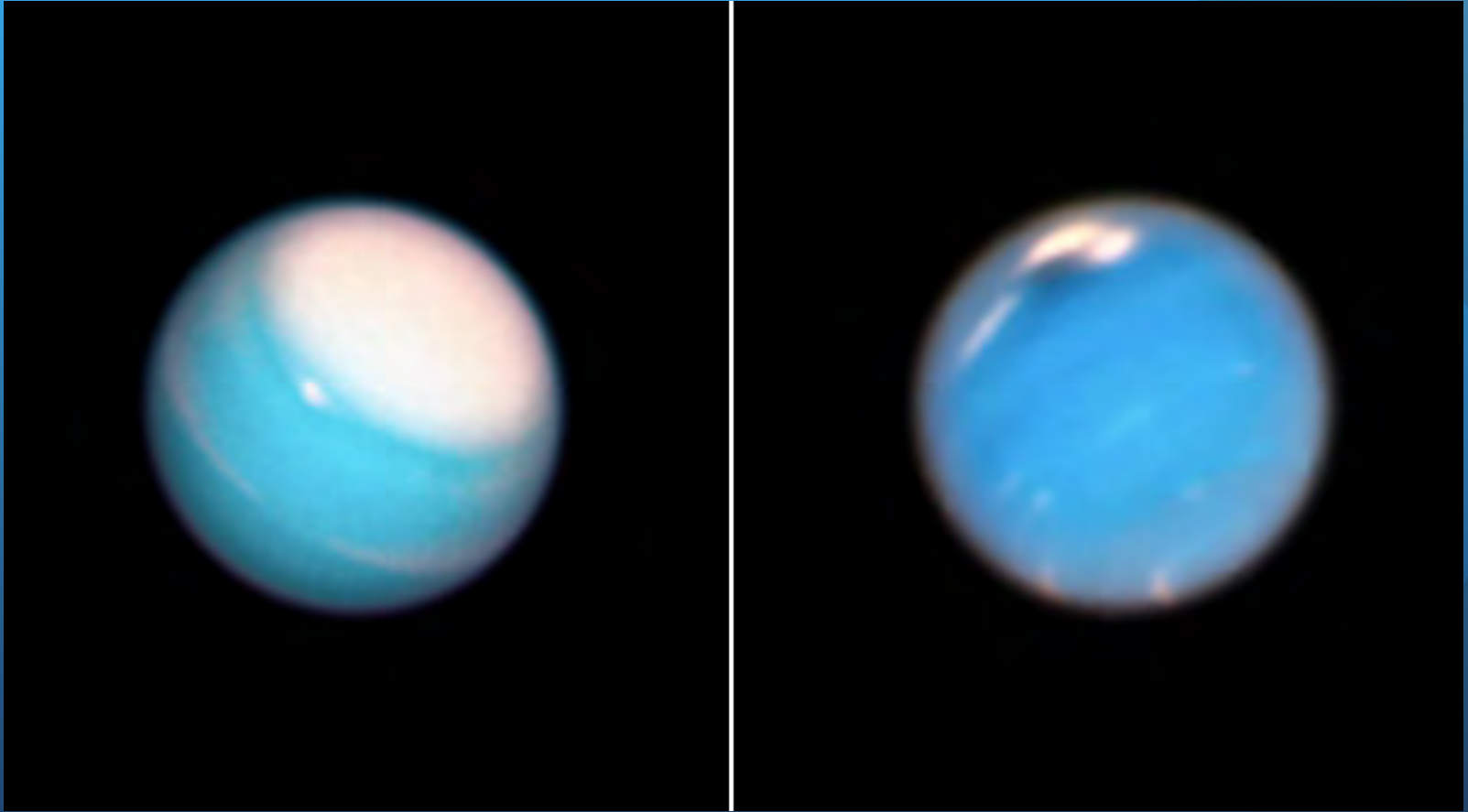


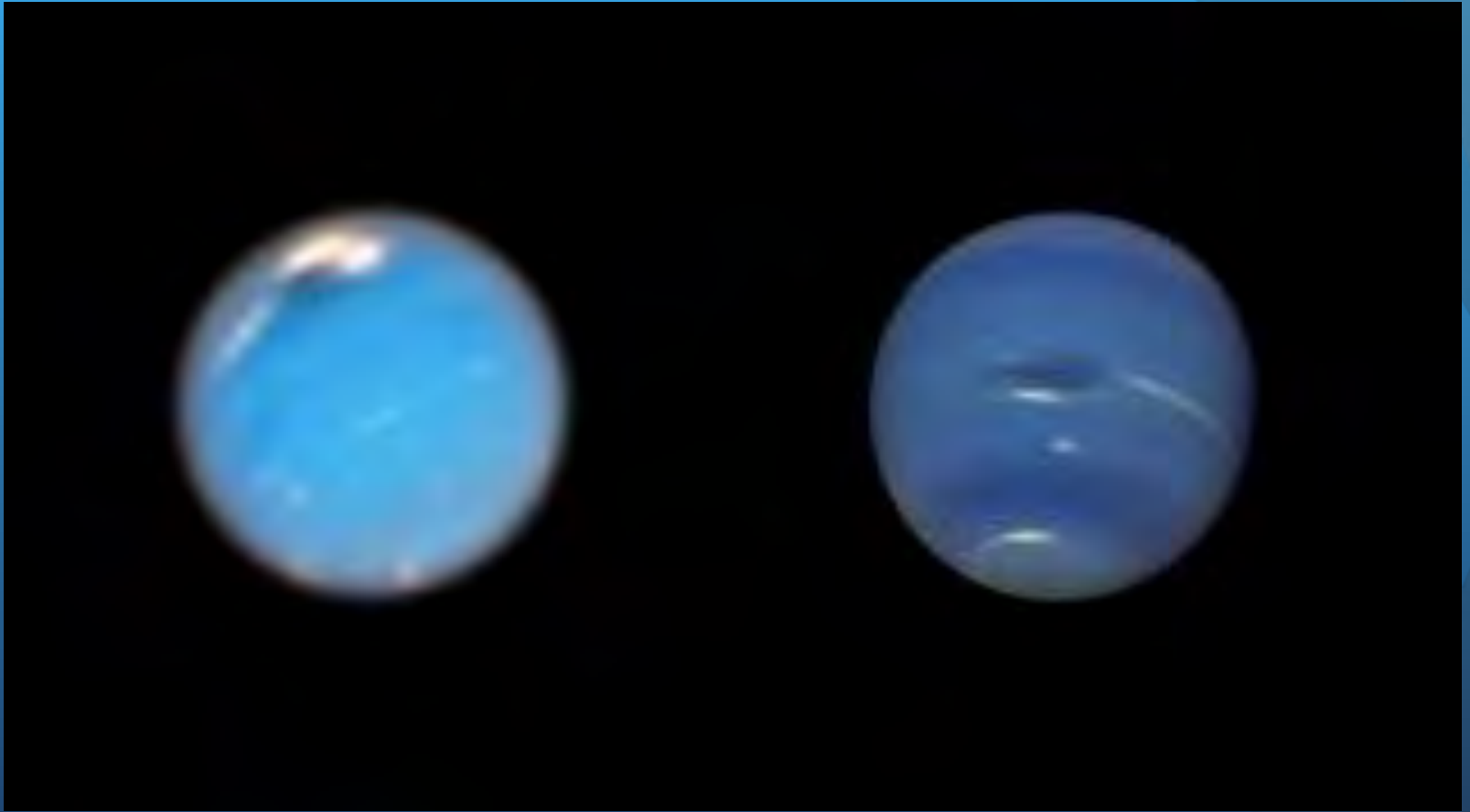




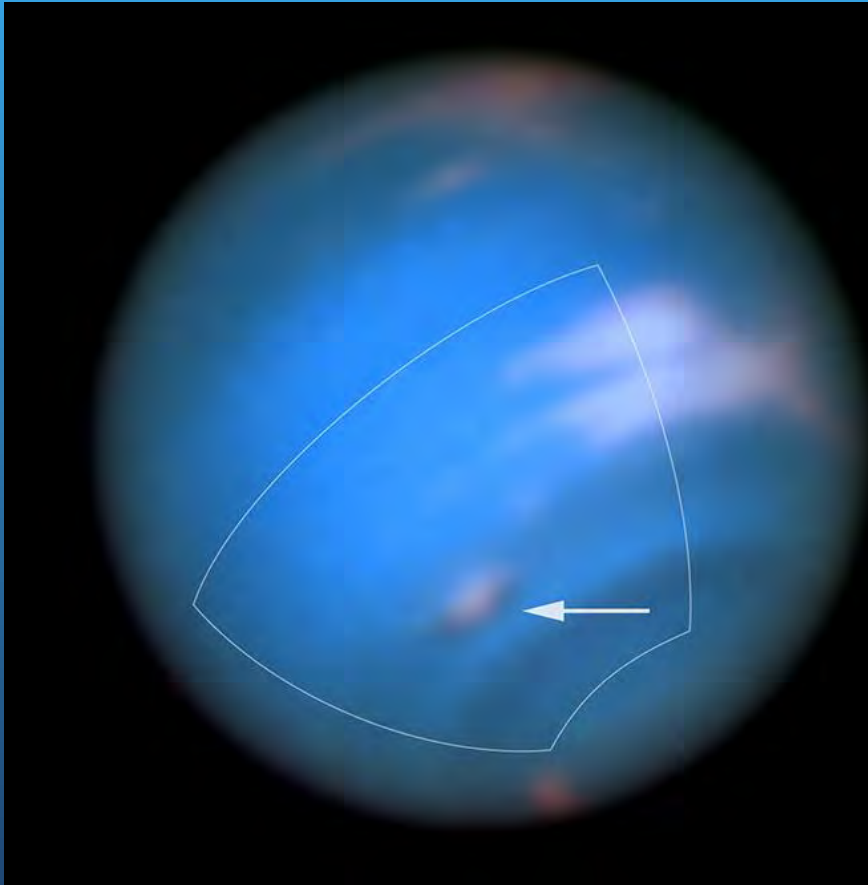
NEPTUNE



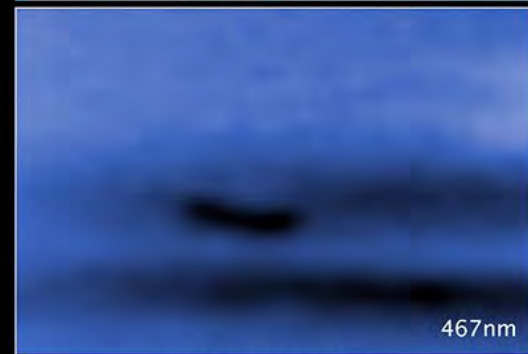




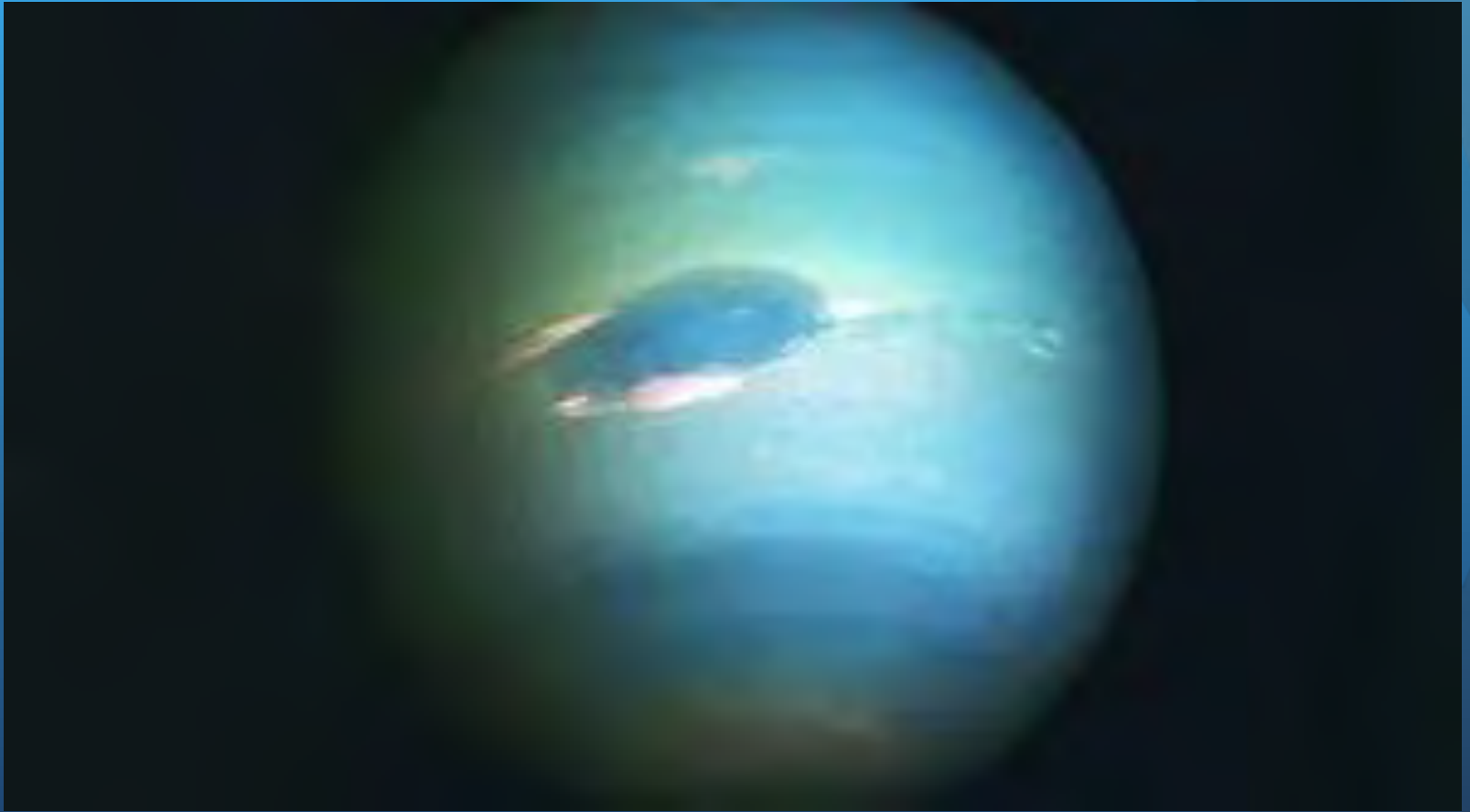
Dark Spot on Neptune ■ May 16, 2016
Hubble Space Telescope ■ WFC3/UVIS

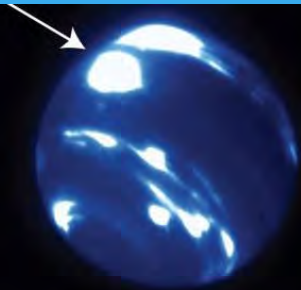


90° of longitude



17,200 mi | 27,700 km





H band: 1.63 μm



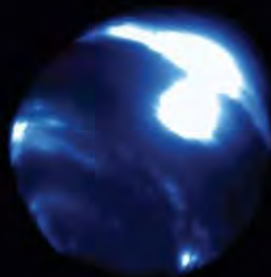
CH4 band: 1.59 μm



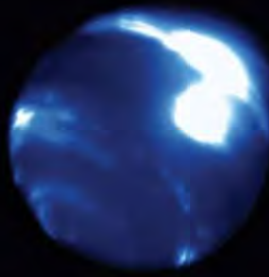
K' band: 2.12 μm

Neptune: 02 July 2017

Images displayed on log scale



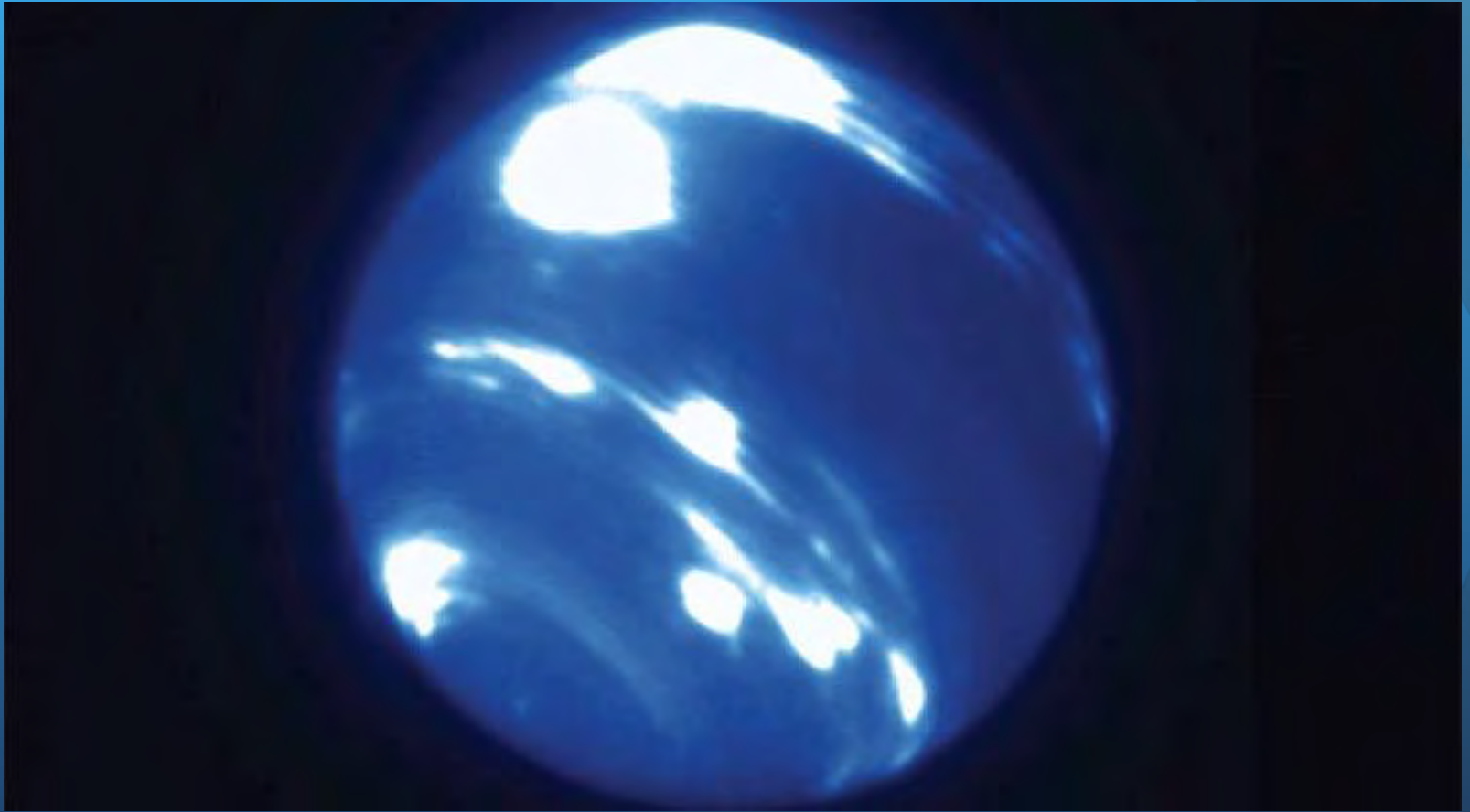
H band: 1.63 μm



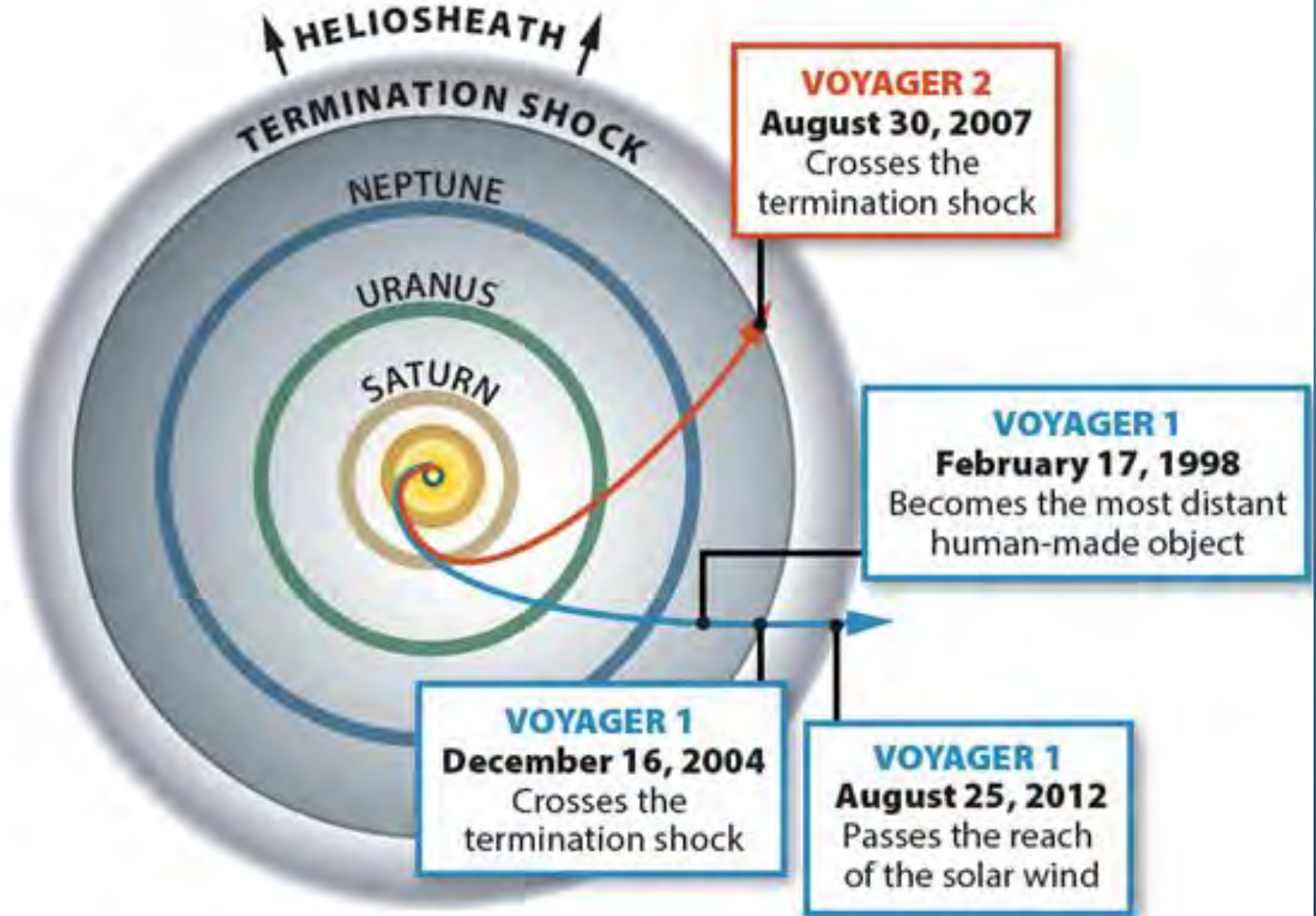
CH4 band: 1.59 μm

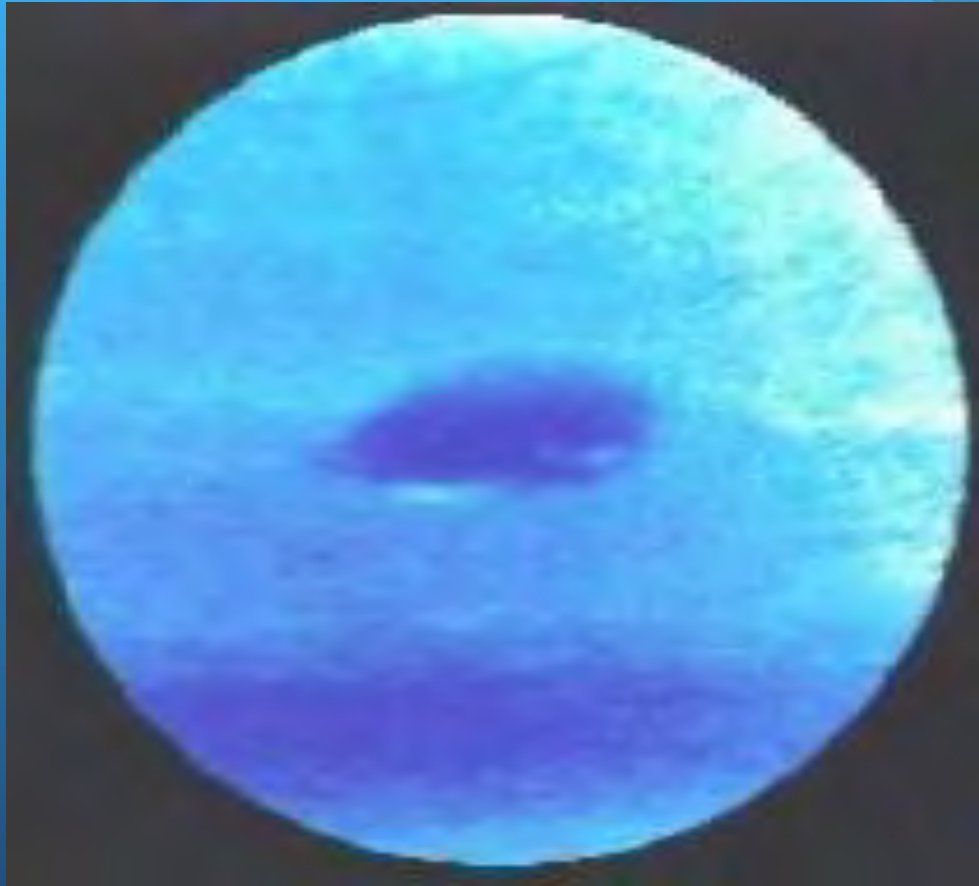


K' band: 2.12 μm









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